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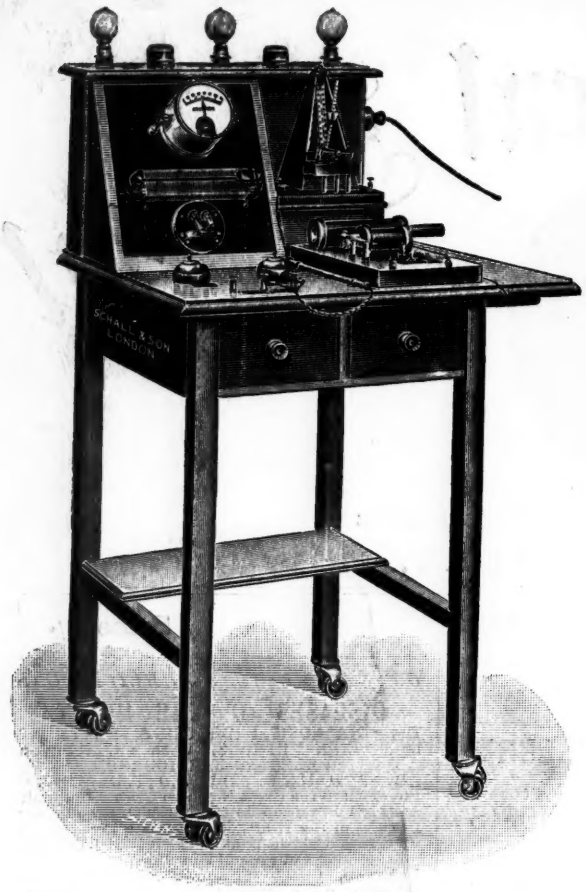

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THE STATE AND PRE-NATAL HYGIENE.*

BY

EDWARD McCONNELL, M.D.,

FORMERLY CHAIRMAN, COMMITTEE ON HEALTH, CORPORATION OF GLASGOW.

SUFFICIENT information is already available to show how important an element in the problem of child welfare is the period when the child is wholly dependent for its continued existence on the health and well-being of the mother. But while ante-natal care is not only as important as post-natal, it implies inquiry into conditions which have little similarity with those properly belonging to the later period. The field, indeed, is primarily clinical and pathological, and some indication of the importance of these is afforded by the mortality of the first four weeks of life. It will be useful, therefore, to look at these for a moment.

The infant death-rate is usually stated per 1,000 births in the same year. This rate for Scotland in 1917 was 107, but in the larger burghs it averaged 124, and in the county districts 88. In the same year the highest rate in individual towns was—139 in Aberdeen, 137 in Dundee, 132 in Perth, 128 in Glasgow, Falkirk and Kilmarnock 125, and 123 in Edinburgh.

From this general statement, however, we obtain no indication of the wide difference in the rate between the early and later months of the first year of life, and it is only by considering this that we are led to understand the predominant part played by ante-natal causes.

Suppose, for example, we distribute the deaths according to the period of their occurrence under three months, under six months, and under twelve months, and state them as ratios of the total births, this is what we get (taken from the Glasgow report):

Glasgow Death-rate, under 3, 6, and 12 Months per 1,000 Births.

	-3 months.	-6 months	-12 months.	1st Year.
1870–2	72	31	67	170
1880–2	65	25	58	148
1890–2	70	25	54	149
1900–2	72	26	47	145
1908–10	63	23	44	130
1915–17	61	22	43	126
Percentage reduction 1870–1917	15	29	36	26

Despite much that has been said to the contrary, the infant death-rate on the whole has been falling during the last forty-five years, but it will be observed from the table that in the second half of the first year the reduction is proceeding at a much greater rate than during the first three months (36 per cent. against 15). More important still is the indication that the fall in the first three months did not become manifest until the present century began. The reasons for this cannot be discussed here, but may be related to the marked improvement in the economic condition of the people in the last quarter of the nineteenth century. In any case this fall has been sudden rather than gradual as in the others. Moreover—and especially in the years from 1890 onwards—about half of the deaths occurring in the first year take place in the first three months.

In relation to our special problem the deaths during this first trimestrium are of most importance, and analysis shows—

1. That two-thirds of the deaths under three months occur during the first month;
2. That in the first week the deaths in both sexes are four times more numerous than in the second week, and about six times more numerous than in the fourth week after birth.

We are thus led backwards from a consideration of the total infant deaths through an increasing monthly number until, as we approach the portal of life, the trap-doors—adopting for the moment Addison's simile in the "Vision of Mirza"—become so numerous that about one-third of the children who are to die before completing their fifty-second week will be already dead ere the fourth week is completed.

In view of this enormous proportion of infant deaths occurring during the first week, let us ask a further question regarding the proportion of those who fall short of the Registrar-General's standard of living and are born dead. We know, for example, that children born dead form fully 4 per cent. of the total births, a proportion in Glasgow representing approximately 1,200 annually.

Here, then, at the threshold of our inquiry, we have 4 per cent. of our births stillborn, a rate which for Scotland means nearly 4,000 a year; and, if we add to them the number of children born alive but dying within four weeks of birth, we have the first illustrations, on a considerable scale, of the work which lies to be done by an organized system of ante-natal care.

The case for ante-natal supervision for these purposes alone is much strengthened by considering the causes to which these deaths during the first month of life are ascribed, for they lead us directly to the period antecedent to birth, and away from the direct influence of environment, as the term is commonly used. This aspect of the question was discussed by the medical officer of health of Glasgow, in a report submitted to the seventeenth International Congress of Medicine held in London in 1913, from which I may quote:

> I suggest (says Dr. Chalmers) the term "immaturity" as the simplest method of expressing the inability of the child to live apart from its mother, and would include within it all deaths occurring during the first month, and ascribed to premature birth, congenital defects, atelectasis, atrophy, and debility or wasting diseases.
>
> None of the other causes of death in the first month seem to me to have the same significance as those belonging to this group, and it is to the gynaecologist, I think, that we must look for some elucidation of the problems they suggest. Of all the other principal groups of disease which I have quoted, they alone gain more than a relative prevalence during the first month. And I doubt whether even this grouping under the term "immaturity" represents the full volume of what, for want of a more intimate knowledge of the causes, we can regard at the moment only as physiological misfits.

GLASGOW: Deaths from Several Causes in each of the First Four Weeks, and Under One Year, per 1,000 Births (Three Years October, 1909—September, 1912).

Total Births 65,325

MALES.

	Weeks.					Under One Year.
	1.	2.	3.	4.	0–4.	
1. Immaturity	22.34	4.22	3.38	2.10	32.03	42.84
2. Diseases of the respiratory system	0.54	0.42	1.11	0.87	2.95	30.38
3. Diseases of digestive system	0.48	0.57	0.78	0.72	2.56	22.43
4. Diseases of nervous system	0.63	0.51	0.33	0.21	1.69	8.88
5. Tuberculous diseases ...	0.03	—	0.03	0.03	0.09	6.99
6. Accidents at birth	0.60	0.03	0.06	—	0.69	0.69
7. Infectious diseases	0.03	0.03	0.06	0.18	0.30	15.92
8. Syphilis	0.06	0.12	0.21	0.15	0.54	1.96
9. Suffocation	0.21	0.18	0.06	0.09	0.54	1.26
10. Other violence	0.12	—	—	0.03	0.15	0.63
11. All other causes	2.11	0.81	0.51	0.36	3.79	10.90
Rate per 1,000 births ...	27.15	6.89	6.53	4.74	45.33	142.88

Stillbirths and deaths from immaturity, although the most tangible sources from which illustrations may be drawn, very inadequately represent the total volume of life lost during ante-natal states. Miscarriage is, in many instances, a perverted habit beginning most probably in disease or injury, but repeating itself in recurring pregnancies. The potential life lost in this way cannot be stated with any approach to accuracy.

Other phases of the ante-natal problems, for example, the occupation of mothers, the effect on mother and child of rapidly following pregnancies, the influence of alcohol, syphilis, and drugs, all require concerted inquiry.

The problem of child life is, however, only one part of the subject of ante-natal care. Puerperal sepsis in Scotland causes over 200 deaths annually; convulsions fully 100; abortions rather less than 100; and all other forms of

*Read before the Sanitary Congress, Glasgow, September, 1918.

illness during pregnancy frequently ending in the death of the mother about 270 annually—in all, just under 700 deaths of mothers, on the average of three years, 1914–16. Puerperal convulsions, we are assured, are wholly preventable if the antecedent condition is treated in time, and it is likely that were the conditions under which the others arise wholly in view from their onset, we should be able to anticipate a reduction in them also.

It is, in my opinion, the distinct duty of the State to give earnest heed to the whole position of maternity, both pre-natal and post-natal, and this not only in its own interest and the interests of the empire, but also in the interests of the mothers themselves, who, if in straitened circumstances, as too many of them are, should be assured of all the medical skill and nursing facilities that are accorded to their more fortunate sisters in the higher grades of life.

The larger towns have maternity hospitals, and occasionally ante-natal beds are to be found in them; ante-natal dispensaries are just coming into being. But they have not yet fully enlisted the active interest of the general body of medicine, and without the active help of the general practitioner I am of opinion than any scheme will have difficulty in materializing.

But in order to co-ordinate all the functions of medical adviser, nurse, and welfare visitor, welfare centres are an absolute necessity, and they must be numerous enough to be available to every group of the industrial population. The dispensary should lead where necessary directly to a hospital bed, while the dispensary and hospital staff should be drawn from the practitioners and consultants of the district.

All this is the work of local organization, but there is a phase of the question which requires direct State help, not only of a financial character. When we think of ante-natal hygiene each one has in a general way a conception of healthy maternal life, but the point at which changes in physiological processes begin to lay the seeds of definite disease are by no means well understood, even by the general body of medical men, and I believe the State might greatly help in this direction by appointing a commission to inquire into the whole question of ante-natal pathology, with a view to determining in a precise form at least some of the data upon which a doctrine of ante-natal hygiene may be based.

THE EXERCISE BLOOD PRESSURE TEST OF MYOCARDIAL EFFICIENCY.*

BY

GORDON LAMBERT, B.A., M.D., B.CH.CANTAB.,

PHYSICIAN TO OUT-PATIENTS, ROYAL BERKS HOSPITAL, AND MEDICAL OFFICER, READING WAR HOSPITAL.

THE variations of the blood pressure induced by muscular exercise have been recorded in series of cases by many observers, with a view to establishing a reliable index of myocardial efficiency. Conflicting opinions have been expressed as to the value of the test, for reasons upon which I shall presently touch.

Among those who have recorded their observations one may mention Dr. Strickland Goodall of London, Sir Clifford Allbutt and Dr. Michell of Cambridge, and Drs. Graupner and Baur of Nauheim. Michell found that in athletes the blood pressure varied from 95 to 100 mm. Hg in the early morning to 125 to 130 mm. Hg two hours after hard exercise. Baur found that in normal subjects exercise caused a rise of 5 to 10 mm. Hg, followed by a fall of the same degree. The chief difficulty with which all observers have to contend is that the blood pressure cannot be taken at intervals during natural exercise, because no sensitive instrument would stand the wear and tear. It is true that the blood pressure has been estimated under somewhat unnatural conditions, as in Valsalva's experiment and in Baur's observations on men pedalling on a stationary bicycle with loaded brakes. But for the most part observers have contented themselves with making records of blood pressure before exercise, immediately after exercise, and at intervals after exercise. During the present military work one meets with so many cases of disease or disorder of the heart that the opportunity of comparing the results of the exercise blood pressure test with the results of ordinary clinical examination is one not to be missed.

Accordingly I have applied the test to several cases of "D.A.H." (disordered action of the heart), and I regret that lack of time has prevented me from applying it to a larger number of cases, and more frequently in each individual case. In making my observations I have followed the methods of Dr. Strickland Goodall, with certain modifications. Two grades of exercise have been used: (1) Walking up and down a long corridor several times at a quick pace; (2) running up and down twenty stairs once or twice.

The instrument used was Martin's modification of Riva-Rocci's sphygmomanometer, and the method employed was the combined auditory and tactile—that is, in addition to the usual armlet, a second armlet carrying the chest piece of a stethoscope was applied over the brachial artery. The blood pressure, pulse, and respirations were taken before exercise and at intervals after exercise. The pulse and respirations were counted by Sister Sheridan of my wards while I was estimating the blood pressure.

Dr. Goodall[1] states that for practical purposes the results of his observations may be classified as follows:

1. *Good Reactions.*—Pulse, respirations, and blood pressure all increase and are normal again at the end of three minutes. (From context, "normal" means previous level or rate.) These reactions are characteristic of well trained healthy hearts.

2. *Fair Reactions.*—All cases in which pulse, respirations, and blood pressures go up on exercise, but have not returned to normal at the end of three minutes. Their return is, however, along normal lines.

[*Note.*—The pulse-rate is the one that usually remains raised, and much importance attaches to the time for which the increased frequency is maintained.]

These reactions are characteristic of the physiological but poorly trained or atonic hearts of persons of sedentary occupation. Nicholson, in his book, *Blood Pressure in General Practice*, states: "With cessation of the exercise both blood pressure and pulse will in a short time return to their previous level, the pulse-rate a little before the blood pressure. In myocarditis cases, if mild, there will be an elevation of blood pressure and an acceleration of the pulse-rate, but the blood pressure in a short time will fall below its previous level, while the pulse-rate remains higher longer.

"In some severe cases the blood pressure will fall from the start, the pulse-rate increasing, the blood pressure rising to its previous level only after a long time."

Goodall groups these severe cases of myocarditis under his two remaining types of reaction:

3. *Bad Reactions.*—The blood pressure fails to rise, although the pulse and respiration go up.

4. *Very Bad Reactions.*—Pulse and respirations increase, but the blood pressure actually falls.

He states that "bad" and "very bad" reactions are typical of hearts in which the myocardium has been damaged by inflammation, strain, or degeneration.

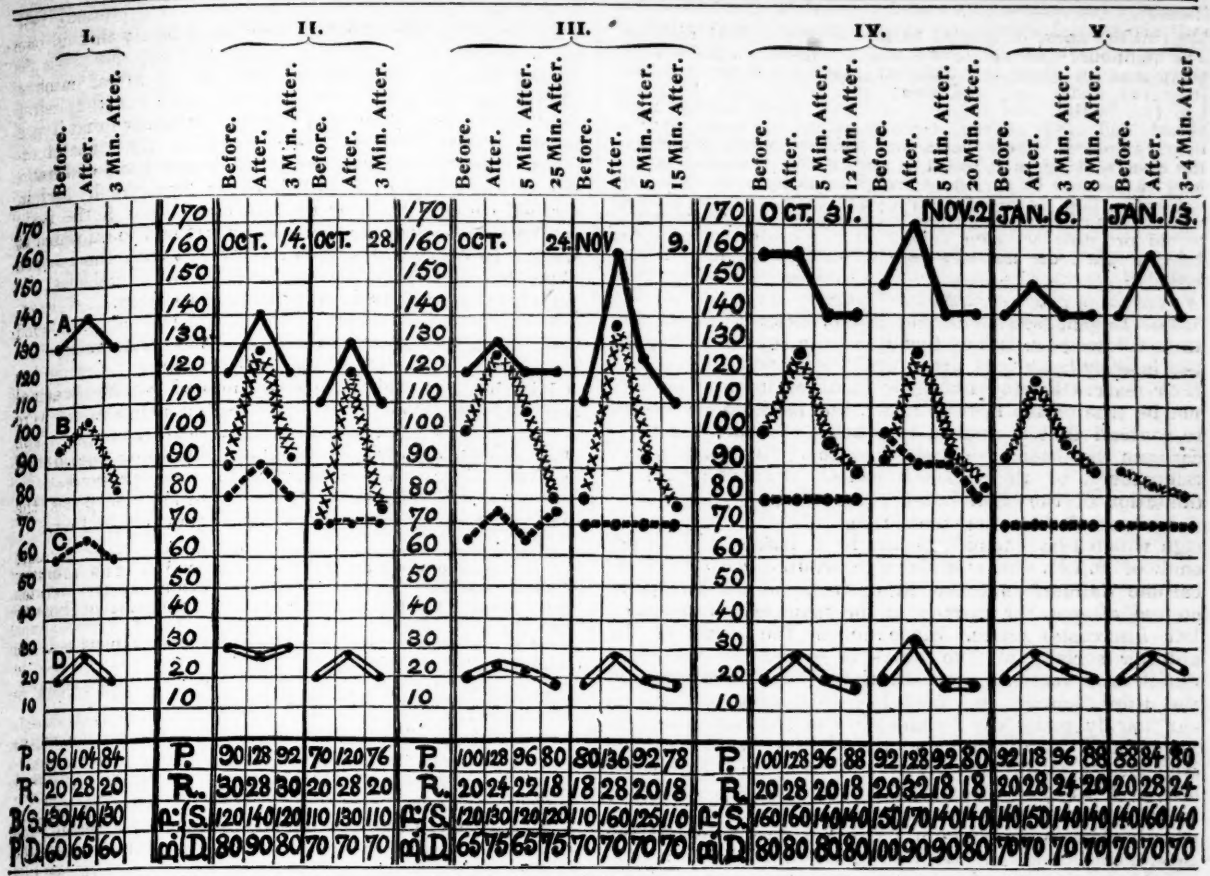
I show first on one chart four imaginary observations, illustrating the four types of reaction which have been just mentioned, namely: (1) Good, (2) fair, (3) bad, (4) very bad. If we agree to adopt Goodall's standard, such a chart serves as a rough foot-rule, which can be applied to charts made from our own observations. Goodall does not state the diastolic pressure in his cases, and I infer that he did not employ the auditory method.

So far as I am aware, no very accurate estimation of the diastolic pressure can be made by tactile or visual methods. In my cases I have included the diastolic pressure as a matter of interest. Since the systolic pressure is approximately the intraventricular pressure and the diastolic pressure is the peripheral resistance, the difference between the two is the pulse pressure, that is, the pressure driving the blood on and through the arterioles.

Strasburger found that after exercise the systolic and diastolic pressures stand in no constant relation to one another. But estimation of diastolic pressure is important in at least two ways: (1) Rise of systolic blood pressure may be due to (*a*) increase in systolic output and concomitant increase in tonicity; (*b*) stimulation of vaso-constrictors centre (unfavourable). In the latter case there should be rise of diastolic pressure. (2) When systolic and diastolic pressures approximate, cardiac power is poor.

The great value of the test is obvious, if we can depend upon it to give us accurate, reliable information as to myocardial efficiency. We know that "D.A.H." is a comprehensive term embracing a large variety of disorders of the heart, but I assume that in the main our object is

* Paper read before the Reading Pathological Society.



The sign at A denotes the systolic blood pressure; that at B the diastolic blood pressure; that at C the pulse; and that at D the respiration.

to draw a dividing line between cases in which the disorder is purely functional in character and cases in which the disorder results from pathological conditions of the myocardium.

Sir Clifford Allbutt has worked at this problem since the year 1870, and as recently as 1909 he modestly stated that he still approached it with diffidence.[3] This attitude of a very eminent authority is in striking contrast to certain very loose but confident opinions as to diseases and disorders of the heart which have been expressed since the war began.

Sir Clifford Allbutt classifies cases into two main groups:

(a) Functional fretfulness of the heart. These are cases in which the action of the heart is disordered by reflex influences from one or more of several organs—the stomach, the brain, the sexual organs, and so forth.

(b) Over-stress of the heart. These are cases in which the heart has been pushed beyond the limits of its capacity, and actual strain or damage of the myocardium has resulted. I shall refer to the question of "strain" again presently.

So much for the objective of the test. Turning to some of the actual cases to which I have applied it:

Chart I: Pte. G., aged 23 years, serves as an example of a good reaction. Both systolic and diastolic pressures rose slightly and returned to the original level within three or four minutes. There was a moderate increase in the pulse-rate and then a fall to a rate below that present before exercise. The rate of respiration did not vary greatly.

In my opinion the test was of distinct value as confirmatory evidence of my diagnosis in this case. The patient was sent in as a "V.D.H." (valvular disease of the heart). Having failed to find any sign of valvular disease of the heart either at rest or after muscular exercise, I applied the blood pressure test. The position of the apex beat was somewhat variable, sometimes in the nipple line, at other times within it. It was not displaced outwards by exercise; there was no sign of cardiac or respiratory embarrassment after the test. There seems no doubt that the patient had a nervous, irritable heart, with moderate tachycardia.

Chart II: Pte. T., aged 40 years, is another example of good reaction.

Chart III: Pte. D., aged 19 years, is a fair reaction.

In the case of T. the blood pressure rose and fell to its original level on both occasions within three or four minutes, at the end of which time the pulse-rate was only a few beats above its original rate.

D's. chart is classed as "fair," because, although the reaction was "good" on the first occasion, the return of blood pressure and pulse to their original level was more gradual on the second occasion—that is, a "fair" reaction. Both appeared to be cases of functional nervous disturbance of the heart without evidence of dilatation from strain. In these cases again the test proved itself of value. The patients were twice under my care. On the first occasion they were sent out recommended for graduated exercises.

The exercises were not given, and after some time the men were returned to me. I then applied the test, and, armed with its results, as well as the results of examination of the heart before and after exercise, I had no difficulty in disposing of the cases again.

The results shown in Chart IV, Cpl. M., are not so easily classified; but I should regard the reaction as bad. On both occasions the pulse rate rose and fell as in a good reaction, but the behaviour of the blood pressure was bad. On the first occasion it failed to rise, and indeed fell 20 mm. during the five minutes following exercise. On the second occasion it rose from 150 to 170 mm., and then fell rapidly to 140 mm. Unfortunately, I had not time to follow the progress beyond a period of twenty minutes after exercise. The history of the case was a bad one. The patient, aged 34 years, but looking older, stated that he had suffered from a "dilated heart" in civil life attributed to a sudden physical strain. He was employed in the A.S.C. unloading ships, and was sent home from France complaining of precordial pain, dyspnoea, and palpitation after exertion. The diagnosis on his travelling label was "tachycardia." For some time after admission the position of the apex beat was very variable, at times as much as one inch external to the nipple line. The impulse was diffuse. The pulse-rate was very variable, and at times very frequent. The patient was nervous, restless, and depressed, and complained of a good deal of pain over the precordium. No increase of percussion dullness to the right of the sternum was detected. He had been treated for some time before the tests were applied, and had improved. The apex beat was within the nipple line, and the heart sounds closed both before and after the tests. I regarded the case as one of strain of the heart, and recommended the patient as fit only for S.F. III employments. Possibly physical strain was not the only factor, but the result of the combined factors was apparently definite damage of the myocardium.

Chart V: Pte. J., aged 19 years. This was a D.A.H. case with definite cardiac dilatation. On admission the apex beat was in the fifth left interspace, half an inch external to the nipple line. Impulse was diffuse and forcible. Superficial cardiac dullness extended to the third left interspace in the parasternal line. Transverse cardiac dullness was variable, extending from ¾ in. to 1½ in. to right of sternum at level of the fourth rib. The pulse-rate was very variable, but tachycardia always present. Extra-systoles occurred from time to time. There was a systolic

bruit at the apex, conducted to the left for a short distance. The pulmonary second sound was not notably accentuated; there was no cyanosis. When the test was applied he had improved under rest and treatment. The apex beat was ½ to ¾ in. within the nipple line. The heart sounds were closed, and other physical signs remained the same after as before exercise. There was a very decided nervous element in the case, and I was inclined to regard the dilatation of the heart as caused by persistent irregular tachycardia. The reactions on both occasions would seem to fall into the class of "good" reactions; but one has to remember that the response would probably not have been good to more searching tests. In this case I did not feel justified in applying more severe tests.

Heart Strain.

The Leipzig school—De la Camp, Krauss, Moritz, and their followers—maintain that it is quite impossible to push the healthy heart and great arteries beyond the limits of their reserve by any muscular effort. This may or may not be true of the healthy heart, but it would be absurd to contend that it applies to a heart of which the myocardium has been previously damaged. Even Zuntz and Schumberg, of the German school, recognize "march dilatation of the right heart" in soldiers.

Apropos of dilatation of the right heart, one physical sign which I have found present in at least 40 or 50 per cent. of D.A.H. cases seems significant. The superficial cardiac dullness is extended upwards in the left parasternal, often as far upwards as the upper end of the third left intercostal space. Since almost the whole of the anterior surface of the heart is formed by the right auricle and ventricle, and the right ventricle lies behind the third, fourth, and fifth left intercostal spaces, we can hardly resist the conclusion that this physical sign is produced by dilatation of the right ventricle. When we consider with it the fact that murmurs in D.A.H. cases are so frequently heard in the third, fourth, and fifth interspaces between the nipple line and the sternum, usually close to the sternum, we seem bound to give them careful consideration. It is unjustifiable to dismiss them lightly as "accidental" or "haemic" murmurs. "Disordered action of the heart" is not necessarily a harmless transitory condition.

Captain McCarthy, R.A.M.C., who studied the condition in a number of cases, found that the prognosis was not good.[4] In the majority of cases the patients returned to hospital again and again, until they were invalided out of the service. His impression, formed by following up the history of men invalided, was that many cases ended in valvular disease.

In dealing with D.A.H. cases our prime object is to form as shrewd an estimate as possible of the quality of the muscle fibre with which we are dealing in each individual case. The previous history, therefore, is of great importance, and the rôle played by past attacks of the infectious febrile diseases in causing degeneration of the myocardium should not be forgotten.[5] It is well to bear in mind also Niemeyer's dictum that there are probably many forms of degeneration of the myocardium which cannot be detected by the microscope.

Even those with the greatest experience of "heart strain" have to content themselves with hypotheses as to its pathology. Sir Clifford Allbutt suggests that a molecular change, probably not to be detected by the microscope, may occur in the cardiac muscle fibre leading to diminished resilience.

Size of Heart during Exercise.

In support of the German school's theory that the healthy heart cannot be dilated by muscular exercise, radiographers now maintain that the heart does not increase in size during exercise; on the contrary, the right ventricle is not dilated, and the left ventricle actually diminishes in size.

After reading pages of controversy on the subject one feels that there is little, if any, ground for contention. Physiologists have never maintained that the heart dilates and remains dilated throughout muscular exercise. They tell us that during the earliest stages, before relaxation of the arterioles occurs, the right heart takes the strain off the left ventricle by accommodating an increased output of venous blood from the muscles. But in a well-trained, "hardened" athlete or soldier this is only a passing phase. The increased volume of blood is dealt with by (*a*) increased alveolar capacity of the lungs; (*b*) development of the thoracic muscles; (*c*) by fall of peripheral resistance, which enables the blood to flow more easily through the left ventricle. Leonard Hill found that arterial pressures exceed ordinary levels for the first ten or fifteen minutes of exercise; then, as the periphery opened out, they fell.

In short, there is no need to insist on either great hypertrophy of the left ventricle or perilous dilatation of the right ventricle during exercise. Both speed and endurance would seem to depend not more on hypertrophy and increased capacity than on efficient correlation of the many mechanisms devised to assist the heart and to diminish its work. In other words, men do not run with their hearts alone, but with their hearts, lungs, thoracic muscles, and peripheral vessels, especially those of the skin.

Evidence Against the Value of the Exercise Blood Pressure Test.

Hirschfelder, after discussing the work of Graupner and Baur, advances the following objections to the test:[6]

1. That the blood pressure in trained athletes falls during mild exercise, exactly as it does in broken compensation; also that it falls when the "second wind" is acquired and while the person's functional power is increasing rather than decreasing.
2. The greatest rises of blood pressure occur in old and feeble persons, whom the exercise brings near to the border line of cardiac overstrain.
3. In persons in whom the blood pressure falls as a result of the test exercise, the general symptoms, respiratory distress, tachycardia, arrhythmia, etc., are more than sufficient evidence that the patient's strength has been overtaxed. These simple signs are more delicate indices and less ambiguous than the changes in blood pressure.

Following De la Camp, Schott, Moritz and others, he concludes:

The only true criterion of cardiac efficiency is whether a given strain causes it (the heart) to diminish in size (increase in tonicity = stimulation) or to dilate (decrease in tonicity = overstrain).

For my part I am already convinced that none of these objections should induce us to abandon the test, which seems distinctly valuable in two directions: (1) as confirmatory evidence of the results of ordinary physical examination in some cases; (2) as an additional test in other cases in which the diagnosis between functional disorder and organic disease of the myocardium is doubtful.

It is noteworthy that even Hirschfelder, after all his destructive criticism, commits himself to the following statement:

This does not mean that the exercise tests are unimportant. On the contrary, they are of the greatest possible value; and no change in the patient's mode of life during convalescence or during after-life should be undertaken without them.

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PULMONARY FAT EMBOLISM AND ITS RELATION TO TRAUMATIC SHOCK.

BY

GEORGE E. SUTTON, B.S., M.D.MINN.,

CAPTAIN M.R.C.

ON my arrival at a casualty clearing station in France last year I was greatly impressed by the type of cases of so-called shock, which closely resembled cases of pulmonary fat embolism I had seen with Bissell at the Mayo clinic. During the last ten months I have been able to investigate a considerable number of cases whose clinical condition was assimilated to "shock."

It is well known to those who have had experience in the resuscitation wards in forward areas that there is a type of wounded admitted characterized by the following features:

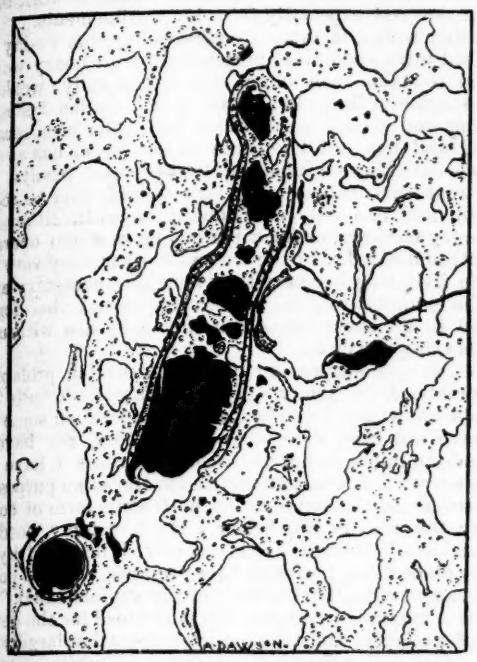
Cyanosis, moderate varying to deep.
Pulse small, easily compressible, and increased in frequency.
Breathing sometimes laboured and increased in rate.
Extremities cold.
Delirium of varying degree.

It will have been noticed also that there is no appreciable or sustained response to measures of resuscitation—

warmth, elevation, rest, and intravenous or subcutaneous stimulation. Within a few hours the patient succumbs; the diagnosis "shock."

In these cases *post-mortem* examination invariably reveals pulmonary fat emboli which can be demonstrated grossly. If this fails, sections of lung tissue should be stained for fat. A typical and interesting case may be cited:

In the reception room at a casualty clearing station I saw a patient admitted with a gunshot compound fracture of the left femur and a gashing wound of the left abdominal wall. In addition to the symptoms resembling shock he was in a state of mild delirium which could not be accounted for by blood loss.



Typical fat embolism. Section of lung tissue (× 57) from case of compound fracture of femur.

This was four hours after injury. The patient was sent to the resuscitation ward, where he was treated by elevation of the foot of the bed, warmth, rest, and intravenous injection of sodium bicarbonate solution (2 per cent.). He died eight hours later.

Autopsy revealed no macroscopic fat, but on staining sections of lung tissue the capillaries were found riddled with fat. I suspected this case of having a pulmonary fat embolus because of the otherwise unaccountable delirium.

Examination of a considerable number of battle casualties which have terminated fatally at a casualty clearing station has led me to the conclusion that 10 per cent. have pulmonary fat emboli demonstrable by gross methods. I am convinced that this percentage would be increased (to what extent it is impossible to say) if sections of lung tissue were stained for fat in all cases.

Cases in which Fat Emboli have been Found.

I. Fractures.
   1. Compound fracture of long bones. (*a*) Single. (*b*) Multiple.
   2. Fracture of skull with destruction of brain tissue.
   3. Fracture of ribs.

II. Wounds involving fatty tissue.
   1. Penetrating abdomen with maceration of omentum.
   2. Large wounds of buttock and trunk.

III. Wounds penetrating the abdomen, with laceration of the liver.

In regard to fractures of long bones a good deal may be said. It has been particularly noticed that in compound fractures reaching a casualty clearing station with splints imperfectly applied, and where, consequently, immobility was not complete, symptoms resembling "shock" were invariably present.

I have seen pulmonary fat embolism more often following a compound fracture without comminution than with comminution.

During a recent crisis, when patients had to be evacuated to casualty clearing stations more hurriedly than in ordinary times a number of cases were received, many in a profound state of "shock." The blood loss in some was not great, as evidenced by the condition of their clothing and stretchers. Amongst these, few showed any response to resuscitation measures. In this series I examined the lung tissue of eight cases, and found pulmonary fat embolism in six. Time would not permit investigation of all.

Relation of Pulmonary Fat Embolism to Shock.

Warthin has shown that repeated injections of olive oil into the right auricle of a dog causes a marked fall of carotid pressure and a marked rise in jugular pressure. Fischer has shown that when olive oil is injected into the vein of a rabbit more than 60 per cent. soon lodges in the lung. His explanation of this is based on the elasticity of pulmonary capillaries, decreased tissue pressure surrounding the pulmonary capillaries, and negative alveolar pressure.

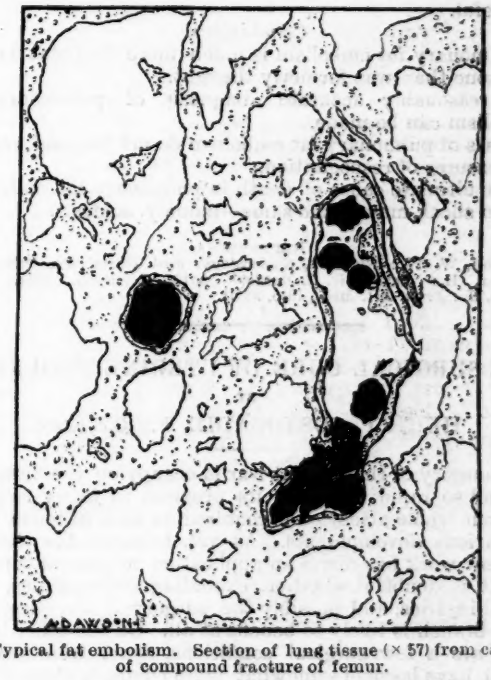
Gauss demonstrated that, with constant factors, the addition of 10 per cent. olive oil increased the viscosity of blood 200 per cent.

Experiment by Gauss substantiated by Bissell.

Time required for 1 c.cm. of fluid to pass through the capillary tube under constant pressure of 70 mm. of mercury, and constant temperature of 24.5° C.:

	Alone.	Plus Olive Oil.
Salt solution	33 seconds	100 seconds.
Ascitic fluid	45 ,,	130 ,,
Human blood serum ...	57 ,,	180 ,,
Human blood citrated ...	160 ,,	480 ,,

Bissell states: "It being known that pulmonary fat embolism, both in man and experimentally in animals, causes a decreased arterial pressure and increased venous pressure even to fatal termination, it is reasonable to presume that venous blood rich in fat would offer additional resistance to passage through capillaries due to its increased viscosity. Certainly, it cannot be denied that in the lung capillaries, where fat is accumulated



Typical fat embolism. Section of lung tissue (× 57) from case of compound fracture of femur.

as by repeated injections, the viscosity of the blood must be greatly increased."

To quote again from Bissell: "The diagnosis of fat embolism, clinically, is based on observations of phenomena produced by distinct, unmistakable lesions grossly demonstrable at necropsy, while the clinical diagnosis of shock is based on observations of signs and symptoms exactly duplicated in pulmonary fat embolism, but, so far as I am aware, not satisfactorily explained in the examination of dead bodies *unless haemorrhage or pulmonary fat embolism is found.*"

To carry the argument one step along, if our unsuccessful cases of shock are due to an acidosis—a prominent opinion to-day—have we not all the factors in pulmonary fat embolism, in varying degree, to produce this acidosis—

namely, a tremendous increase of blood viscosity, high venous pressure, slowing of blood flow, and deficient blood aëration?

By the above statement I do not mean to assert that all fatal cases of shock are due to pulmonary fat embolism, but that the physical and chemical properties of lipaemic blood are such that acidosis cannot be avoided, and it is still to be proven whether the terminal mechanism is not the same.

The occurrence of pulmonary fat embolism in the war area is much more frequent than has been suspected, owing, probably, to lack of thorough examination of lung tissue for evidence of fat.

Associated with pulmonary fat embolism disseminated fat is found in the other tissues of the body, included in the capillaries. This undoubtedly accounts for the delirium so frequently associated with this condition.

Examination of Lungs for Pulmonary Fat Embolism.

Use a glazed earthenware plate or platter washed thoroughly with soap and water and rinsed; the knife is cleaned in the same manner.

Wipe the surface of the lung clean with a dry towel. With one long sweep cut into the lung, then, free from contamination with fatty tissue, express some of the blood from the cut surface. Allow this blood to flow slowly in a thin stream over the platter. If there is fat present it will appear as little globules on the surface of the expressed blood. Experience will render the detection of small amounts of fat an easy matter.

Treatment.

1. Prophylactic treatment consists in fixation of fractures with extension where possible; early and efficient surgical interference for fractures; at operation on wounds involving fatty tissue it is imperative to secure careful and complete haemostasis, *particularly the ligation of the non-bleeding proximal ends of veins as well as the bleeding distal ends.*

2. Active treatment is only symptomatic. Small amounts of sodium bicarbonate (2 per cent.) are helpful. The administration should be regulated by the condition of the right heart. Transfusion of blood in small amounts may be useful.

Conclusions.

Pulmonary fat embolism is much more frequent in the war zone than was formerly thought.

A reasonably accurate diagnosis of pulmonary fat embolism can be made.

Cases of pulmonary fat embolism do not respond readily to measures of resuscitation.

The ultimate cause of death in pulmonary fat embolism and in shock may be the same—namely, acidosis.

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THE SURGICAL CURE OF UTERINE PROLAPSE.

BY

HUGH P. COSTOBADIE, F.R.C.S.EDIN.

THE surgery of the present war is occupying the minds of all, and so rapid has been its progress in many respects that our whole attention is required to keep in touch with its various developments. As yet, however, but little of the new work has found an application to general surgery, and it is doubtful whether, excluding orthopaedics, accidental injuries, and possibly the surgery of the chest, any other branch is likely to benefit at all. On the other hand, there are a few surgical conditions, apart from wounds, which have become somewhat more common during this period, and therefore more experience has been gained in them. Of these, hernia, both in the male and female, and prolapse of the uterus are being more frequently encountered. Alternative operations for the former condition are being published and discussed, and the results are being more readily and carefully followed, so that some improvement is likely to accrue in the surgical treatment of this condition. Unfortunately uterine prolapse has not received so much attention.

The following paper has been written to describe what are probably the best operations for the cure of prolapse practised to-day. Though very much pre-war operations, they are not as well known as they deserve to be, nor is their reputation likely to spread at a time when pressure of work tends to make men adhere to their own methods, unless their attention is especially called to other measures.

That prolapse should increase can be readily understood, and it may chiefly be accounted for by the following factors:

1. Great increase of women workers.
2. Heavier kinds of employment.
3. Less food, especially fats.
4. Increase of wage, which keeps the woman at work even when she is ill and brings her back to work before she is recovered, especially from her confinements.

In other words, it more frequently happens to-day that increased intra-abdominal pressure through heavy work is enabled to take such effect upon generally weakened uterine supports in a woman whose occupation keeps her standing and whose pelvic floor has either been recently injured and has not had time to recover, or has at some previous date become impaired, that prolapse results.

To treat this, rubber rings can scarcely ever be recommended, and can only occasionally be used, either as a temporary measure, or for a patient upon whom operation is contraindicated. In the woman worker they very soon become irritating because they lack the necessary attention she is unable to give. Operation should therefore be advised in all these cases, whether they are within the child-bearing age or no.

Fixation and suspension of the uterus for prolapse is still practised by many surgeons, but the results with patients on whom I performed this operation some time ago have not been altogether satisfactory, nor have the results been much better in those few cases I have seen where suspension was performed for the same purpose by other surgeons. In combination with some form of colporrhaphy the results are better. Hysterectomy need not be considered, though even recently I heard of hysterectomy alone being performed for prolapse, with, of course, a subsequent complete eversion of the vaginal canal.

Of the vaginal operations still performed for the definite cure of prolapse, the transposition operation largely used in America, and extensive anterior and posterior colporrhaphies, as practised in Manchester and elsewhere, are the only methods by which a cure can be almost definitely promised. The American "transposition" operation consists of freeing the uterus and bladder, and using the former and the cervix, or a necessary portion of these, after the remainders have been excised, to give a firm support to the bladder. A posterior colporrhaphy or perineorrhaphy is then performed. The published results of this operation are good, but it has several obvious drawbacks which I think are not possessed by the method of anterior and posterior colporrhaphy which I am about to describe. I first saw these colporrhaphies performed by Professor Donald and Dr. Fothergill of Manchester, and have since carried them out according to their technique with uniformly good results. The operation in the case of complete prolapse, with the almost always present elongation of the cervix, consists of amputation of the cervix by a circular method, or by means of anterior and posterior flaps, followed by a large anterior and posterior colporrhaphy. Dr. Fothergill carries out the amputation and anterior colporrhaphy by means of one incision. Dr. Donald amputates the cervix by means of anterior and posterior flaps, and then follows the anterior colporrhaphy, a separate step entirely. Either operation may be performed according to the requirements of each individual case. Usually I prefer to amputate by means of flaps when the patient is of child-bearing age, but after that time I use the circular method, where, should stenosis of the canal follow, it would not be of so much importance. I perform this operation as follows, which is, I believe, as nearly as possible the method employed by the Manchester surgeons.

The patient having been prepared, is placed in the lithotomy position; the vagina is freely flushed out with a solution of lysol, followed by perchloride. It is then carefully dried out with swabs and washed with spirit and the surrounding surfaces painted with iodine. The anterior lip of the cervix is grasped with vulsellum forceps and a sound is passed to give an accurate measure of the amount of cervical elongation. The cervix is then dilated sufficiently to admit the flushing curette, and the interior of the uterus is carefully curetted. The posterior lip is now grasped with a second pair of vulsella and drawn down as far as possible, everting the vaginal canal almost completely.

(In the following description the words "above" and "below" refer to the position of the parts as they now are.)

A pair of small Spencer Wells forceps is now used to pick up the mucous membrane, just below the urethral orifice exactly in the middle line, and being held by an assistant, serves to mark the apex of the incision which is about to be made, as well as to put the anterior vaginal wall more on the stretch. Two other pairs of forceps are used to mark two points opposite to one another on the lateral aspects of the cervix, well below the point at which it is decided to amputate (Fig. 1). The whole anterior vaginal wall is now made tense by means of gentle traction on these forceps and the vulsellum, and from a point immediately below the first pair of forceps to a point immediately in front of and below the forceps on the left of the cervix an incision is made curving somewhat outwards. This incision is then carried circularly around the back of the cervix to a point just below and in front of the forceps on the right of the cervix; from thence to the starting point at the first pair of forceps (Fig. 1). Care must be taken to cut through the mucosa along the whole length of this line, as the incision is apt to become lost where the folds of the mucosa prevent the knife from reaching the underfolds. The denudation should commence at the apex of the triangular area thus mapped out, and is greatly assisted by catching the free edge of the mucosa with artery forceps at short intervals and stretching it over the finger-tips of the left hand. It is carried out by frequent snipping of the underlying connective tissue with the rounded points of a pair of angled or curved scissors. If the proper plane is struck, gauze dissection can sometimes be used and time saved, but rough handling is to be avoided, as the upper two-thirds of the dissection is over the bladder, the lower fold of which is usually apparent through the mucosa. When the surface has been denuded as far as the level of the two lateral Spencer Wells forceps, deep snips are made with the scissors straight down upon the firm cervix, these deep cuts being carried round the back of the cervix, following the line of the original incision. The firm cervix having been reached throughout its entire circumference, the loose tissues are easily separated from it by means of a swab and pushed upwards until the selected point is reached for its division. The knife is then taken and the cervix cut through half its extent, when, to retain it, its anterior edge is caught with a pair of stout Kocher's forceps applied in the middle line, the amputation completed (Fig. 2), and the posterior edge caught in the same way.

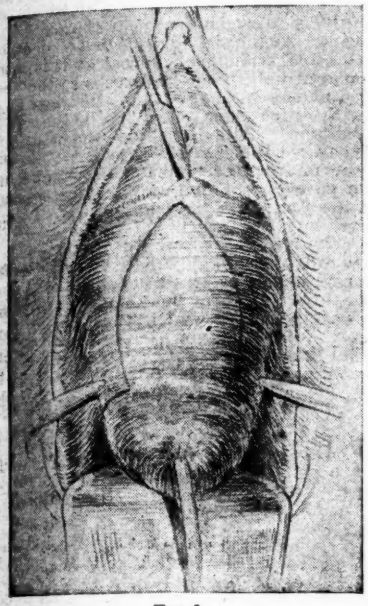

Fig. 1.

Haemorrhage, the bladder, and Douglas's pouch require special mention. Bleeding is not brisk until the cervix is reached, when branches of the uterine and vaginal arteries are wounded. The amputation should therefore be carried out fairly quickly, the larger vessels temporarily controlled with pressure forceps, and permanently by suture-ligatures of gut as soon as the amputation is completed. The bladder, which can usually be easily located before the operation is commenced, is not readily wounded during the denudation if reasonable care be taken, and, even if very low, is pushed up out of the way with the loose tissue by means of a pad of gauze, as described during the freeing of the cervix before its amputation. It is at this stage also that the pouch of Douglas, lying behind, is also pushed upwards out of danger. In most cases, however, it lies much lower than the bladder and is therefore more frequently injured. If this happens, it should be closed at once by means of a purse-string suture, for though the danger of a general peritoneal infection is not very great, a local collection of pus may form.

Suturing is now commenced, and as the success of the operation depends greatly upon them, the sutures are most carefully applied. A medium sized cutting needle, preferably Hagedorn's, is threaded with No. 3 chromicized gut. The needle is easily introduced a little way up the dilated cervical canal and driven through, in the middle line, the posterior wall of the cervix, the latter being steadied by means of the Kocher forceps here applied. These are now removed and the free edge of the mucosa behind is picked up with dissecting forceps, its edge brought over the raw surface of the stump of the cervix till it reaches the edge of the cervical canal. Retained in this position, the needle is made to penetrate it and the suture is tied and the ends are left long. A large "Auvards" self-retaining speculum is now introduced into the vagina, and sutures are applied in the manner described, first on one side and then on the other of the primary suture, until the circuit of the cervix is completed. During their application the cervix is steadied by pulling upon the long ends of those already in place, though the traction must not be so great as to prevent the easy and accurate covering of the cervical stump.

As the suturing from behind gradually approaches the front it will be found that the uterus tends to retract within the vagina, and the two marking forceps originally applied laterally to the mucosa covering the cervix approach one another in the middle line. The final stitch is best applied as a blanket stitch gathering up the loose lateral parametric tissue, approximating the two edges of the mucosa, and at the same time fixing these upon the last bare part of the cervix. The Kocher's forceps, together with the Spencer Wells, are removed before this stitch is tied. Still using with care the stitches as tractors, the uterus is now lightly packed with gauze, the end being left long enough to remain outside the vagina. This packing serves to keep dilated for the time being the new orifice of the cervical canal. The long ends of all the cervical sutures except the last one (that in the middle line in front), are now cut short and the speculum withdrawn, and the uterus is tucked further into the vaginal canal, where, though still readily accessible, the supporting parametric tissues are allowed to become more relaxed. It is in this position that the remaining sutures must be applied. These are of No. 4 or 5 catgut, used with the same needle as before. It is well to remember that a double turn to the first half of each knot, when tying catgut, saves much time and gives more accuracy to the result. It will now be found that the surface to be covered runs from the tip of the cervix to the first pair of "marking" Spencer Wells. It is oval in shape, and its edges can be readily approximated (Fig. 3). Interrupted sutures are used, commencing from the cervix, and the first three or four are the most important. These should be wide and deep, biting well into and gathering up as much more as possible of the loose parametric tissue lying laterally to the cervix. By this means the cervix will be kept back, and a position of anteversion of the uterus obtained.

When applying each successive suture some traction may be made upon the last to steady and approximate the edges of the incision above, but this must be so conducted that the stitching is carried out actually within the vaginal canal; nor must the cervix or any part of the anterior vaginal wall be again drawn outside. Here again the bladder needs special consideration. When, during the denudation of the anterior vaginal wall, the connective tissue which lies between the bladder and vagina is found much thinned and even entirely absent, a row of buried sutures may be placed in the bladder wall folding it inwards from top to bottom of the surface exposed. A second or third row may follow, until the denser connective tissue lying laterally has been so approximated that it can be picked up and drawn together with each stitch that closes the mucosa. By this means the bladder is raised, the so-called "hernial opening" of the cystocele closed, and the urethra straightened. It is advantageous at times to separate the bladder somewhat from the uterus to perform this step the more effectively.

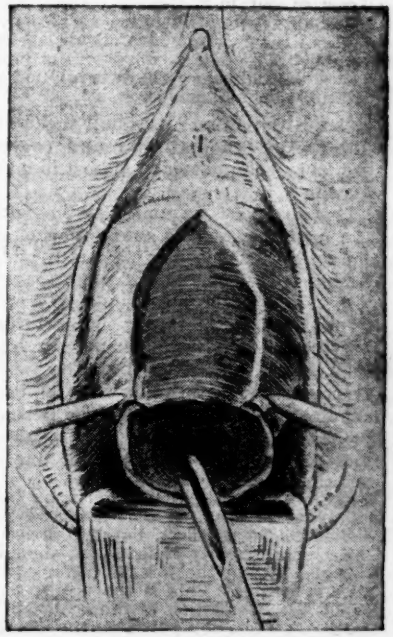

Fig. 2.

The last suture having been placed and cut short, a small speculum is passed and the suture line inspected for possible bleeding from needle puncture of small vessels, when the flattening or slight incurving of the anterior vaginal wall, together with a marked increase in its length, will be noted—in other words, a complete disappearance of the cystocele, and a backward pointing cervix.

So much of the foregoing description applies to the alternative method—that is, that of flap amputation of the cervix followed by an extensive anterior colporrhaphy—that it will not be necessary to do more than indicate the steps of the operation.

The two cervical lips, after dilatation and curettage have been carried out, are seized and held apart by means of vulsellum forceps, while the cervix is split laterally to a height corresponding to the length of cervix it is thought desirable to remove. The posterior half is now amputated, leaving a flap thin enough and of sufficient extent to be turned forward over the cut end of the cervix, where it is fixed by three or four sutures which are carried first through the cervix, entering it just within the dilated cervical canal, and then through the flap. The ends of these sutures, which are of chromicized gut, are left long and serve to steady the cervix while its anterior portion is removed in the same manner, and the flap fixed. A few more stitches serve to bring the mucosa together over the stump on each side of the cervical canal and to control all the haemorrhage. The uterus is now packed, the end of the gauze being brought out of the vagina and all the stitches, except two or three in the front, are cut short. Having picked up the mucosa in the middle line and just below the urethral orifice with a small pair of Spencer Wells forceps, the anterior vaginal wall is made sufficiently tense by traction upon these and upon the long ends of the sutures. An incision is now begun just below the forceps and carried downwards with an outward curve in the manner already described. The cervix, however, being already amputated, the incision curves sharply forward across the front of the stump, instead of passing behind, and from here, in a curve corresponding to that of the opposite side, is carried back to the starting point. Denudation is commenced either from above or below. It is carried out in the same manner and with the same precautions as before described, as also is the suturing which is begun at the cervix. Care should again be taken to make the first stitches include as much of the lateral parametric tissue as possible, and before they are applied to push the uterus well within the vaginal orifice.

FIG. 3.

The introduction of a small speculum and inspection of the anterior vaginal wall and cervix will show that a result has been obtained almost identical with that already described.

The posterior vaginal wall has now to be dealt with. The insufficiency of a simple perineorrhaphy led Professor Donald to devise the operation of posterior colpo-perineorrhaphy. By its means the "bagginess" of the upper vagina is greatly diminished by a colporrhaphy which is commenced high up upon the posterior vaginal wall, which is stripped of its mucosa in stages from above downwards. Each stage is closed before the next is commenced, and the triangular denudation with its broad base reaches the muco-cutaneous junction at the perineum.

The final steps are those of a perineorrhaphy. No speculum is used, but a point in the middle line, and fairly high up the posterior vaginal wall, is picked up with a pair of Spencer Wells forceps. Slight traction upon these brings down much redundant mucosa, so that a second pair of forceps may be applied above the first, but still strictly in the median line. These, when gently pulled upon, should bring the mucosa, at the point held by the forceps, as far down as the vaginal outlet but no further. This is the proper point at which to commence the denudation of the posterior wall. Thus fixed and raised, it will be noted that the mucosa falls sharply away from the forceps in two lateral folds, which eventually become lost in the lateral vaginal walls. At the lowest point at which these folds remain prominent they are again picked up with forceps, one on each side (Fig. 4). In this manner an isosceles triangle of mucosa is formed, about an inch and a quarter upon the sides and an inch across the base, which can be kept on the stretch. The incision runs from the apex to the base upon each side, keeping within the marking forceps. Denudation is carried out from above downwards, and when the base of the triangle is reached the lateral tension is relaxed and suturing is commenced from above. Interrupted sutures of catgut are again used as in the anterior suturing, and the last suture here applied will bring together the lateral marking forceps, which have not been removed and which, held together, now form a traction point for the apex of a second triangle, which is mapped out, denuded, and sutured in the same manner as the former.

The mapping out of the third and final area will require the placing of the lateral marking forceps on the sides of the vaginal outlet. In estimating the position in which these are to be placed, it is only necessary to remember that the portion of the vaginal outlet in front of the forceps will remain and will correspond to the new vaginal orifice, the size of which can be estimated before the incision is commenced by approximating these two pairs of forceps. An incision is made first on one side, then on the other of this final triangle of mucosa as it is made tense by means of counter-pull upon the forceps at the apex and those last applied at the vaginal orifice. Between these two lateral incisions the area is denuded until the muco-cutaneous junction is reached. Along this line—the base of the large triangle—the separated mucosa is cut free. Within this area much scar tissue is frequently met with, binding the rectum firmly to the posterior vaginal wall, and care should be taken to see that the former is thoroughly freed. Lateral tension is again relaxed and the suturing of the mucosa continued from above downwards. When the proper level is reached the levatores ani are brought together with buried sutures and the suturing of the mucosa afterwards continued to the outlet. Two or three silkworm gut tension sutures are placed deeply through the perineum, which serve also to bring the skin edges together. A further light packing for the vagina is tied to the free end of that which is already within the uterus and the operation is completed.

I have not given a more detailed description of the later stages of the operation because so much has been written upon perineorrhaphy, but I must call attention to one or two points which are sometimes missed in these descriptions. They are: the height at which the denudation should commence, the depth to which it is necessary to carry it out, and the objects to be attained by the suturing.

It has been stated that there is no necessity to carry out denudation beyond the level of the upper border of the levator ani muscle. It should be remembered that the operation is in part a plastic operation upon a tube, and to commence abruptly and yet sufficiently extensively would result in a great bagginess above a narrowed outlet, which would be a hindrance to the future proper drainage of the vagina. The mucosa only need be removed throughout the whole extent of the posterior colpo-perineorrhaphy. There is no necessity whatever to bare the levator ani muscle by removing the sub-mucous fibrous tissue. This, indeed, must be carefully left, as the muscle can be well defined by touch, and the fibrous tissue gives greater support to the sutures drawing the muscle together than will the muscle fibres themselves; and of course, however carefully these muscle fibres be approximated, the union that follows will be a fibrous one.

FIG. 4.

The two objects of the suturing, over and above the closing of the raw surfaces, are to approximate as accurately and as far forwards as possible the separated and stretched levator ani muscles, and to build up at the same time as large and firm a perineal body as is possible. The former object is greatly aided by making as broad a denudation as will not too greatly constrict the vagina so that a maximum of the muscle can be reached. This also will be aided by placing the sutures for approximating the levatores ani *before* the mucosa of the posterior vaginal wall (opposite the plane on which the muscles lie) has been brought together. It will be found that if the loose fibrous tissue be gathered up with every stitch used in

coapt the edges of the mucosa there will result a great addition to the remnants of the perineal body.

The operation here described may be looked upon as the most extensive ever found necessary, and therefore has only to be modified to suit lesser degrees of prolapse, when amputation of the cervix nearly always ceases to be necessary. The results are almost invariably excellent, even in very stout women, and the operation can be carried out without fear of preventing pregnancy or interfering with delivery. Retroversion, uterine prolapse, cystocele, and rectocele, which are each in turn dealt with during this operation, are corrected and cured.

References.

[1] Professor Donald, 1908. [2] Dr. Fothergill, *Transactions of the Edinburgh Obstetric Society*, 1907–8; British Medical Journal, April, 1915; *Amer. Journ. of Surgery*, May, 1915.

A METHOD FOR THE IMMEDIATE TREATMENT OF FRACTURE OF THE FEMUR ON THE BATTLEFIELD AT THE SITE OF THE CASUALTY.

BY

F. B. CHAVASSE, Captain R.A.M.C.,

Attached No. — Casualty Clearing Station.

Scope and Objects of the Method.

This method is *not* a rival to the far more satisfactory Thomas splint; but the first place at which a Thomas splint is available is not at the site of the casualty, but (with fortune) at the regimental aid post, or, if active operations are in progress, not until the advanced dressing station in most cases.

Up to this point the nature of the ground renders constant jolting and severe undulation of the stretcher inevitable. Often covering many thousand yards, and occupying many hours, this preliminary journey to the aid post or advanced dressing station is by far the roughest portion of the patient's transit to a casualty clearing station. It is also by far the longest in time. The most deadly portion of the journey is, therefore, before a Thomas splint can be applied.

At present this journey is undertaken with the aid of the very ineffectual rifle splint, or more generally with no splint at all.

The following method is designed for use by regimental stretcher-bearers at the place where the casualty occurs.

The Method.

The principle of the method is the application of very powerful extension, followed by fixation in the extended position.

A stretcher and two slings are required. It is the rule for each of the four bearers in a squad of regimental stretcher-bearers to carry a sling. Thus two slings are still available for carrying the stretcher (should this method of carrying be possible or desirable). If there are no slings, puttees can be used. Spare slings should be available at aid posts. The procedure is as follows:

1. Expose and dress the wound.

2. Enlarge the adjustable loop of one sling to its maximum by shifting the grip plate as far as ever it will go. Slip the loop over the foot on the injured side, and pass it up as far as the groin.

3. Tie the ankles and knees firmly together (with narrow fold triangular bandages, or other bandages or makeshifts).

4. Open the stretcher and place on it a small pillow where the knees will be. (A waterproof sheet, doubled from side to side and *loosely* rolled from end to end makes a suitable pillow.)

5. Place the patient on the stretcher so that his heels project an inch or two beyond the edge of the canvas, or more if he is a tall man. The heel on the injured side should be a little lower than the other if possible.

6. Adjust the loop of the other sling so that it is equal in length to the distance between the poles of the stretcher (1 ft. 7 in.). Slip it over one handle and wind very tightly about the feet, as shown in Figs. 1 and 2. That is to say, pass it from one handle across the soles of both feet, up across both insteps, behind both ankles, down across both insteps, *then through the loop* (to avoid torsion of the feet), and thence across the soles of both feet to the opposite

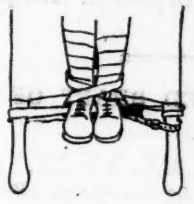

Fig. 1.—Securing the feet. Note small loop end passed through large loop, and small loop itself turned inside out, bringing small strap *inside* the small loop.

Fig. 2.—Securing the feet. Note end of sling passed through large loop before buckling off. Small loop turned inside out, bringing small strap *inside* the small loop.

pole. Secure by buckling the small strap round the opposite handle, making all as taut as possible. To avoid the small strap tearing away owing to the strain, the small loop to which it is sewn should be turned inside out, thus causing the strap to pass actually through the small loop.

7. Gently raise the stretcher almost into the perpendicular, so that the patient is hanging by his feet. Draw the patient down head first as far as he will come (Fig. 3.). (If the patient continues to have pain he may be

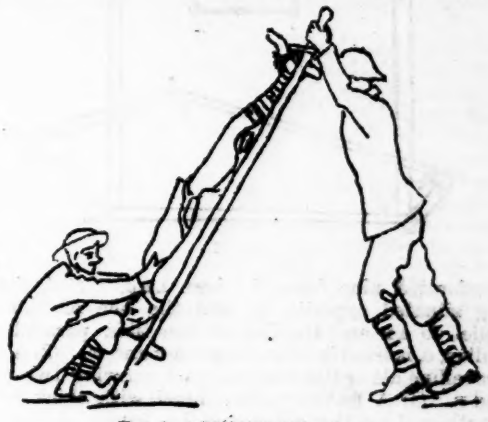

Fig. 3.—Obtaining extension.

left for a few minutes until the muscles are tired. He may then be drawn down a little further.) The stretcher may be propped up against something.

8. See that the back part of the loop is well behind the buttock. Adjust the loop so that the grip plate will almost lie on the surface of the stretcher when the strain is taken. (This position of the grip plate tends to correct the flexion abduction and external rotation of the upper fragment.)

9. Put a very heavy strain on the groin sling and secure by buckling the small strap round the pole handle by the head in such a way that it does not rotate and slip (Fig. 4).

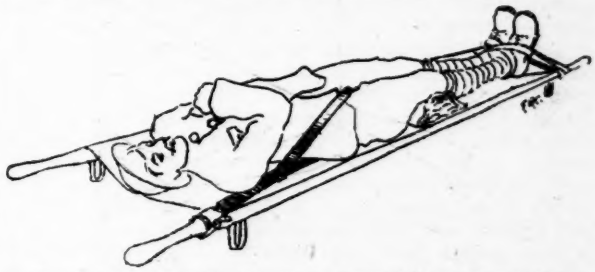

Fig. 4.—Note that the dressing on the wound, the bandages round the ankles and round the knees, and the bandage securing the pelvis to the stretcher are omitted for the sake of clearness. Also the rifle, which may be placed (bolt removed) along the outside of the limb to steady it.

While making fast the strong pull must be kept up in order that everything shall be taut after making fast. (There is no possibility of the groin loop constricting the femoral vessels, as in the rifle splint and a badly applied long

Liston. For the sling loop is so oblique that it does not cross these vessels at all.)

10. Level the stretcher. Tie a bandage round pelvis and stretcher. Lay a rifle, bolt removed, along the outside of the limb to steady it. Bandage it in position. The patient is now ready for his journey.

A SPLINT FOR FRACTURED SHAFT OF THE FEMUR.

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THE apparatus is designed with the two-fold object of keeping the limb at rest—that is, with hip and knee slightly flexed—and of producing an extension which acts in the line of the femur. Such an extension may be brought about by pin transfixion of the lower end of the femur, or preferably of the head of the tibia, for it is to that region that the hamstrings are inserted, the semitendinosus and semimembranosus to the tibia, the biceps to the head of the fibula. These are the muscles which act as the main cause of the shortening, of such frequent occurrence in fractures of the femur.

The apparatus consists of (1) a metal framework (Fig. 1). The limb is slung by flannel bandages, rubber supports,

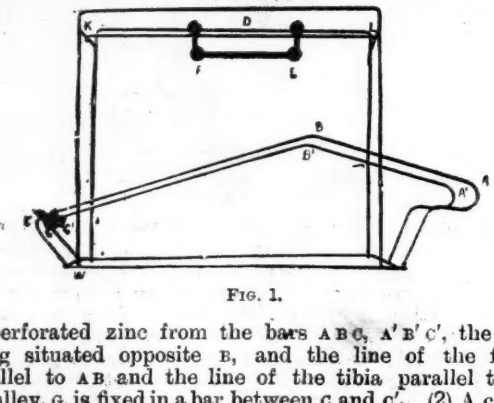

FIG. 1.

or perforated zinc from the bars A B C, A' B' C', the knee being situated opposite B, and the line of the femur parallel to A B and the line of the tibia parallel to B C. A pulley, G, is fixed in a bar between C and C'. (2) A cradle, D, travelling along the bar, K L, and carrying two pulleys, E and F. (3) A leather collar, lined with thick felt and strengthened on the outer side by bands of thin steel, acting as springs to prevent lateral pressure on the head of the fibula. The collar fits loosely round the leg at the level of the head of the tibia. A metal ring, from which one of the pulls in the limb is taken, is fixed in the upper surface of the collar.

Represented diagrammatically (Fig. 2) the force desired is one, Y, acting in the line X O Y. By the parallelogram

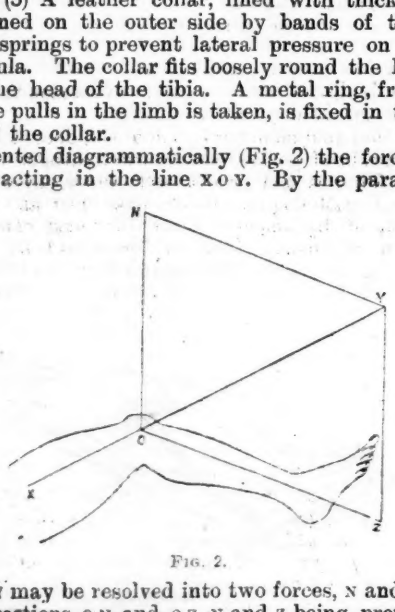

FIG. 2.

of forces Y may be resolved into two forces, N and Z, acting in the directions O N and O Z, N and Z being proportionate to Y as the length of the lines O N and O Z are to the lines O Y. The angles are such that, when the resultant force acts in the line O Y, Z is twice N. The force N is produced by a weight pulling over F and E (Fig. 1) on to the ring attached to the leather collar. The force Z is obtained by a weight acting over G on to a stirrup fixed to a strap extension applied along the sides of the leg.

Method of Application.

A strap extension with stirrup is put on the leg in the usual manner a couple of hours or more before it is proposed to put the limb up in the splint. Gauze and glue are better than adhesive strapping. Care must be taken that the strapping be not prolonged downwards below a point 2 in. above the malleoli or upwards on the outer side of the leg above the neck of the fibula.

If the patient has been in a straight splint for any length of time a general anaesthetic will be necessary. The knee and thigh are semiflexed and slung by flannel bandages. The slings are adjusted until the long axis of the thigh lies parallel to A B, and the long axis of the leg parallel to B C, and the knee lies opposite B. The slings may now be replaced by perforated zinc if thought desirable. The leather collar is buckled round the upper part of the leg, so that the ring lies above the head of the tibia. If the felt be too thin a little wool should first be placed round the leg. The greatest care must be exercised to avoid the slightest pressure on the head of the fibula. A cord is fixed by one end to the ring on the collar, and the other end is passed over the pulleys E and F, and attached to a weight. In this way a vertical pull is exercised through the ring. The weight acting over C is now attached to the extension on the leg.

Until the shortening has been overcome a resultant pull of about 25 lb. should be employed—that is, a vertical pull of 12 lb. acting over F and E and a pull of 24 lb. acting over C. These weights will be necessary for about forty-eight hours, after which they may be reduced by 50 per cent. or more. If it be found undesirable to have so large a weight as 12 lb. hanging at F, a system of multiplying pulleys can be attached to the collar, and the weight diminished accordingly.

Any tendency that the whole limb may have to ride forwards, or for the apparatus to press into the groin may be counteracted by placing a counter extension of strapping on to the sides of the upper part of the thigh, fixing it to the posterior end of the splint below A and A'. The foot is kept in position by a sliding foot-piece or a toecap. When the skin is too tender for strapping, the whole leg up to the knee may be put in plaster-of-Paris and the extension incorporated in this. The slings may be removed for dressings without unduly disturbing the position of the limb. The patient may be propped up in bed or allowed to lie flat as may be desired.

Advantages of the Apparatus.

1. Ease of application.
2. The limb is kept in the position of rest.
3. A pull is obtained along the line of the femur which is necessary to secure the best position of the fragments.
4. No open operation is required, and the risk of septic infection of fresh tissues is avoided.
5. The ease with which dressings may be performed.
6. Added comfort to the patient.

Disadvantage.

The possibility of a pressure sore occurring over the head of the fibula. This will not occur if the collar be loose and the springs strong. If the patient makes any complaint, the collar can easily be unbuckled and the part examined, and any readjustment made.

I am indebted to Major L. Bathe Rawling for much helpful criticism. The splints have been made for me by the Kensington War Supply Dépôt.

P. CARNOT and H. BONDOUY (*Compt. Rend. Soc. de Biol.*, 1918, lxxxi, p. 487) have found by observations on man that the caecum possesses a considerable absorptive power for water, sugars, and albuminoids. Some very soluble substances, such as peptones, do not go as far as the caecum, whereas other very readily reabsorbed substances, as sugars and albuminoids, penetrate the caecum, but are not found in the rectal evacuations. They conclude that the caecum plays a far from negligible part in digestion, that the suggestion of certain biologists and surgeons as to the uselessness of the large intestine does not correspond with physiological facts, and that resection or exclusion of the large intestine leads to a great physiological waste of valuable alimentary substances.

"ACIDOSIS" AND HYDROGEN-ION CONCENTRATION.

BY

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In Professor Moore's second paper[1] he carries on the problem of "buffer salts" to the important practical connexion it has with the state called "acidosis" and with the appropriate treatment thereof. The question is discussed in some detail in a forthcoming memorandum of the "Shock" Committee, which will soon be placed by the Medical Research Committee at the disposal of those interested. But it may serve a good purpose if I attempt, as briefly and simply as I can, to place the main points of the discussion before the judgement of the readers of this Journal. Before doing so I may be permitted to reply to Professor Moore's criticism of my previous statements so far ar they refer to the relative importance of the proteins and the bicarbonate in the blood.

When Fernbach and Hubert used the word "tampon," we may surely assume that they were aware of its meaning. Littré's *Dictionnaire de Médecine*, after stating that "tampon" is used for "tamponnement," describes the latter thus:

> Introduction de bourdonnets ou de tampons de charpie, secs ou imbibés de liquides hémostatiques, dans une plaie ou dans une cavité naturelle, telles que l'utérus, le vagin, les cavités nasales, pour arrêter une hémorrhagie.

As I remarked before, the word is not altogether satisfactory for the purpose of the authors named, but it is better than "buffer." However, I adhere to my opinion that neither is required in the case of the blood.

Claims of priority in such matters are rather sterile and lead to little profit. It must be admitted that the work of Professor Moore and his colleagues has not received the attention it deserves, but may I point out to him that the titles of the papers scarcely suggest that the method by which the neutrality of the blood is preserved is discussed therein?

The experiment suggested at the top of p. 253 has actually been done. With what result? In the *Journal of Biological Chemistry*, vol. vi (1909), Brailsford Robertson put forward the same view as Professor Moore has done, but without referring to his work. Lawrence Henderson replied in the succeeding volume with calculations showing that the effect of protein must be very small compared to that of the bicarbonates. Robertson then performed the actual experiments, and honourably admitted that he was wrong. He states (p. 356) that between the reaction of normal blood and that of "advanced acid intoxication" "the proteins of the blood are about one-fifth as efficient as the bicarbonates in maintaining its neutrality." These experiments were done by the use of the hydrogen electrode, and their accuracy cannot be denied. Professor Moore, on the contrary, holds that 90 per cent. of the effect is due to the proteins.

There is no doubt that proteins can combine with acids and bases in strength beyond this range; but, as Professor Moore admits, the turning point of methyl-orange is at a reaction incompatible with life. The chemical change to which I referred is merely that of an internal anhydride to an open form, easily reversible by the removal or addition of the elements of water.

The experiment of adding a drop of acid to serum and noting that the change of colour produced returns to its original tint on exposure to air is of interest because it shows that the increase of acidity is due to carbon dioxide set free. If it does not come from bicarbonate, what is its source? No evidence has been given against that quoted as a proof that proteins do not combine with carbon dioxide.

The giving off of carbon dioxide to a vacuum does not really touch the present question, because the blood is not exposed to zero tension of carbon dioxide in the lungs and at the actual alveolar tension no bicarbonate is dissociated. I quite agree that "acidosis" cannot be determined by driving off the carbon dioxide by sulphuric acid in a vacuum, for the reason to be seen presently.

I must ask pardon of Professor Moore for misunderstanding him as to the kind of union he believes to exist between the salts and colloids of blood serum. It appears that he does not mean chemical combination but physical juxtaposition, in fact, what most people now call "adsorption." Much confusion is caused by the use of the word "combination" for this. But I do not admit that it is an error to say that the sodium and chlorine ions in a solution of sodium chloride are not in "chemical union." If they are, what is the difference between the dissociated and undissociated molecules? The reason why the ions cannot be separated without the expenditure of a great amount of energy was pointed out by Arrhenius to be the physical electrostatic attraction between oppositely charged bodies. The use of the expression "chemical combination" should be restricted to those cases where there is a change in the nature of the atoms concerned, such a change as implies alteration in their internal structure and energy.

However, I cannot agree that the salts are in a state of adsorption on the surface of the proteins. Adsorbed substances take no part either in osmotic pressure or in electrical conductivity. The reason why gum solutions are so much more effective in maintaining blood pressure is not because they hold back the salts from escape, but because they hold back the *water*. As Scott showed, the wall of the blood vessels is normally permeable to salts and water, not to colloids; hence the osmotic pressure of the latter is effective in holding back the water from leakage to the tissues.

The paragraph with reference to the production of toxins and so forth has nothing to do with the maintenance of neutrality and confuses the issue. The advocates of "acidosis" as an important factor in pathological conditions assert that it is the state itself that is responsible. But what do they mean by it?

The introduction of the names "acidosis" and "acidaemia" can only be regarded as a misfortune to the interests of clear thinking. If they mean anything, they imply that the blood becomes acid. It does not improve matters when Van Slyke defines acidosis as a state in which the sodium bicarbonate of the blood has become reduced below a certain value. The question is, Does the introduction of acid into the blood, whether by formation in the tissues or by intravenous injection, increase the "acidity" of the blood to any perceptible degree, or is it of itself a matter of any real importance? I regret to notice that Professor Moore himself uses the word "acidity" when he merely means a change in the available alkali of the blood, because Sir Almroth Wright's method of titration determines this and no more.

This property which we call "acidity," common to all acid substances, is the presence in their solutions of hydrogen ions arising from their greater or less electrolytic dissociation. Different acids vary in this, and it is no small advantage of the use of the expression "hydrogen-ion concentration" that it gives us in absolute numerical expression the strength of an acid.

Now, when acid comes into the blood, does it change for more than a brief period of time the hydrogen-ion concentration? This is the crucial test, since all the physiological and pathological effects described as due to acid are effects of hydrogen ions in increased concentration. That none of these effects are produced by the introduction of acid into the blood is shown by the experiments of Dale and Richards, which will be found described in detail in the memorandum to be published. I may merely say here that large quantities of acid were injected into cats intravenously, enough to produce what Van Slyke's method would indicate as a very severe acidosis, since the bicarbonate was reduced to a very low level. On recovery from the anaesthetic, these cats ran about and showed no abnormal signs. Some experiments which I made myself throw light on the reason why this was so. A sample of blood was taken from a cat under urethane, the plasma centrifuged off under liquid paraffin, and a drop of neutral red added. The colour was the orange tint of neutrality. Acid was then introduced into a vein in amount sufficient to neutralize one-third of the bicarbonate. Temporary hyperpnoea resulted, as in Dale and Richards's cats. Another sample of blood was taken a little later and the reaction to neutral red was found *unaltered*. Neutral red is very sensitive to a slight change in hydrogen-ion concentration at the region of the reaction of blood and would easily have indicated it, if present. There was no increase in the hydrogen-ion concentration, although the

bicarbonate was reduced. In other words, there was "acidosis" without any change in the "acidity."

Dale and Richards produced acidosis without any harm, because there was no increase in the hydrogen-ion concentration. The explanation should be obvious. Lawrence Henderson pointed out that the hydrogen-ion concentration of a bicarbonate solution containing dissolved carbonic acid depends on the relative proportion of the bicarbonate itself to the carbonic acid. The bicarbonate is the alkali which balances, as it were, the presence of the acid. If we diminish the bicarbonate, therefore, we can keep the hydrogen ion constant by removing carbon dioxide. When acid obtains entrance into the blood it drives off carbon dioxide from a part of the bicarbonate, forming the sodium salts of the acid. There is a temporary increase in the hydrogen ion from the excess of carbonic dioxide, but this increase is far less than the acid itself would have produced in the absence of bicarbonate, because carbonic acid is an extremely weak acid and very little dissociated. All the same, the respiratory centre is so sensitive to the slightest increase of hydrogen-ion concentration that the increase in carbon dioxide referred to is sufficient to stimulate it. This excess of carbon dioxide is rapidly removed by the respiratory ventilation of the lungs, and as soon as enough has been removed to make up for the decreased bicarbonate the respiratory centre ceases to be stimulated, because the hydrogen ion has become normal. Such experiments show the actual state of affairs in the living organism, whereas methods of determining merely the bicarbonate reserve in the blood after exposure to the air or to a particular tension of carbon dioxide, give no information as to the hydrogen-ion content in the organism, because they take no account of the respiratory compensation. When we remember that acids are produced by deficient supply of oxygen to the tissues, we see how appropriate the increased ventilation is.

It may be said that if the sensibility of the respiratory centre is depressed, such a compensation may be inadequate. To test this, I repeated the previous experiment under a large dose of morphine, so that the respiration was reduced to five or less a minute. The result was a marked fall in the bicarbonate reserve, but the change in hydrogen-ion concentration, although detectable, was very minute. It was far less than necessary to produce any of the pathological results ascribed to acidosis.

Corresponding experiments may be done with serum *in vitro*. Adding acid in quantity sufficient to neutralize one-half of the bicarbonate causes an increase in hydrogen ion if compared with normal serum after bringing both into equilibrium with my own alveolar air. But if the tension of the carbonic acid in the air with which the more acid serum is brought into equilibrium is reduced to one-half that of alveolar air, then the hydrogen ion is brought to the same point as the normal serum in equilibrium with normal alveolar air. This is within the limits of respiratory capacity. Henderson and Haggard have shown that to maintain the hydrogen ion constant when the bicarbonate falls by one-third, 50 per cent. more ventilation only is required.

The capacity of regulation towards alkali is more limited in the living animal. I performed an experiment similar to the acid one, but injecting bicarbonate instead of acid. Neutral red is yellow in bicarbonate solution, which is therefore alkaline to it. A sample of blood taken forty minutes after the end of the injection, which had been given slowly, still gave a yellow colour with the indicator, showing an abnormal degree of alkalinity. This is perhaps to be accounted for by the fact that to compensate the increase in bicarbonate, *less* carbon dioxide than normal must be given off by the lungs; this would also mean a decreased supply of oxygen to the blood, a mischievous effect. It shows that the injection of alkaline solutions is to be deprecated, unless care is taken that the normal bicarbonate content of the blood is never exceeded. Too low a hydrogen-ion concentration is as bad as, or worse than, too high a concentration, because it is less easily rectified by respiration, and physiological processes are just as sensitive to one as to the other.

Professor Moore states that Cannon found a decrease of bicarbonate reserve in wounded men in France. This I admit, since I was present at some of the determinations, but it does not prove that this was the cause of the low blood pressure in these cases of shock. Indeed, Cannon was always alive to the possibility that the low blood pressure was the cause of the production of acid, and further investigation has convinced him that this is the correct explanation. It is remarkable that Wright and Colebrook (*Lancet*, June 1st, 1918), although they recognized deficient blood supply as a cause of "acidaemia," instead of recommending methods of improving the circulation by the injection of appropriate liquids which do not leave the blood vessels, should have recommended merely solutions of sodium bicarbonate. This certainly neutralizes acid after its formation, but has no effect in diminishing its further production, except by the raised blood pressure during the short time that it, like any other saline solution, remains in the blood vessels. A positive objection to it is that, by diminishing the hydrogen-ion concentration of the blood, it depresses the respiratory activity and leads to a lower oxygen supply at a time when more is needed. In no form of experimental shock have I found injection of bicarbonate of benefit, whereas a solution of gum in 0.9 per cent. saline, even when slightly acid, is nearly always curative.

Decrease of bicarbonate in the blood is not, then, of importance in itself, and the only practical value of determination of its degree, whether by Van Slyke's or by Wright's method, is to indicate deficient oxidation in the tissues. It shows the necessity to improve the blood flow, and recent experience seems to indicate that what is needed is only a solution which will permanently increase the volume of the blood; there is a reserve of haemoglobin, unless the loss of blood has been exceptionally great. The important practical problem of when transfusion of blood is required, and when gum alone suffices, is still under discussion.

REFERENCE.

[1] BRITISH MEDICAL JOURNAL, September 7th, 1918, p. 251.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

CELLULOID SOLUTION FOR TRACTION.

(Abstract.)*

FOR the past three months experiments have been made with a 5 per cent. solution of celluloid in acetone, which we have found makes an excellent adhesive material; 7 or 8 per cent. may be used where only small areas of skin are available.

The required amount of celluloid scrap and acetone are placed in a dry, clean, wide-mouth bottle, securely stoppered, and shaken at intervals. The solution is ready for use in forty-eight to seventy-two hours, and when properly made is an almost clear homogeneous, syrupy fluid.

The skin should be absolutely dry. A layer of celluloid solution is rapidly applied by a small brush. The quantity should be sufficient to soak through the strip on which traction is to be applied, and a thin coating is applied externally to get out all the wrinkles and air bubbles. Canton flannel is the best material for strips, but a double layer of gauze or muslin that is neither too hard nor too finely woven, may be used. The application of iodine, picric acid and alcohol to areas to which any type of adhesive is to be applied should be avoided as far as possible. If there is a delay in putting on the strip, the skin should be recoated, for it dries out in a thin flexible film in a minute or two. The application of a circular gauze bandage increases the effectiveness of adhesion. The solution is combustible, and it is therefore advisable to label bottles properly.

Twenty-five applications of this solution have been carefully observed and it is believed that the scope of traction is increased by its use.

CONCLUSIONS.

The conclusions founded on the cases reported in the full paper are as follows:

1. Six per cent. celluloid in acetone makes an excellent adhesive material.

2. Its rapidly volatilizing quality permits of immediate traction.

*The full paper has been forwarded for publication in *Surgery, Gynecology, and Obstetrics.*

3. It can be used in higher concentrations when only small areas of skin are available.
4. It is insoluble in water—hence not affected by perspiration or climatic changes.
5. Solutions which are likely to increase desquamation should not be used prior to application of adhesive material.
6. The natural process of exfoliation of epidermis limits the effectiveness of one application to about three weeks.

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A SIMPLE GRIP FOR ADJUSTING SUSPENSION CORDS.

For adjusting the levels of the shoulder straps in Sayre's suspensions my father used a simple self-retaining grip or hitch. I believe that he designed it sometime about the early eighties, and a large-sized model of boxwood has been placed in the museum of the Royal College of Surgeons of England. Now that so many limb splints are suspended it seemed likely that this grip might be usefully applied for adjusting their heights by the lengths of cord. As used on the Sayre suspension, the grips were machined out of bronze castings, and these would be rather too heavy, and moreover difficult to get made in the present days. I have therefore endeavoured to simplify the pattern so as to make a readily obtainable device of light weight.

The principle consists in passing the cord through a fixed loop formed at its end; the loop is placed in a slot in a solid piece, through which a hole at right angles to the slot is made to accommodate the main cord; thus a running noose is formed, on which a ring or hook is threaded; when the fixed loop is pulled upon it jams the running part against the sides of the slot in the grip block. By means of the ring the tension in the two limbs of the running noose is more or less equalized, so that after pulling up a weight attached to the ring by means of the free end of the cord, on ceasing to pull the weight remains suspended at the point to which it was raised. If the friction exercised by the ring is removed, as by replacing it with a pulley, the mechanical conditions are upset and the grip ceases to act; it is important, therefore, to introduce some friction at this point.

FIG. 1.

FIG. 2.

FIG. 1.—Showing construction of wire-made grip. The eyes face one another in parallel.
FIG. 2.—Diagram of disposition of cord. A A, jamming points, properly one diameter length apart. Arrow X, direction of pull to raise; arrow Y, direction of pull to release.

The first modification was made by riveting two triangular brass plates together with distance rivets, leaving a space of about $\frac{1}{8}$ in. between (for service with $\frac{1}{8}$ in. blind cord, or, rather, the fixed loop of that material), whilst a $\frac{5}{32}$ in. hole through both plates allowed the passage of the free cord. The uppermost of the three rivets serves for attachment to the fixed support. This makes a neat contrivance but demands too much labour in the making. A further simplification results by forming eyes at the ends of a short piece of wire, which is bent at its middle as a staple. One of the free ends of the wire is left rather long and bent across to form a distance piece, and all the points of contact are fixed by a trifle of spelter; even without any solder a considerable weight can be supported without spreading, and possibly pewter solder might be sufficient, but it is rather better to make things absolutely safe with hard solder. For $\frac{1}{8}$ in. diameter woven blind cord, galvanized steel wire of imperial standard wire gauge 12 (about 0.1 in. diameter) is sufficiently thick; the eyes may be formed about $\frac{3}{16}$ in. internal diameter, which brings the distance piece well above, and so allows plenty of room for threading. The eyes may have about $\frac{5}{32}$ in. distance between them. For larger cord it would be advisable to use a thicker gauge of wire and dimensions to suit.

The figures will perhaps make matters clear; the points marked A A are in reality the contact points with the pair of eyes, against which the running cord is jammed by the tension of the fixed loop.

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COLLOSOL MANGANESE IN FURUNCULOSIS AND SEBORRHOEA.

I WOULD like to add my testimony to the value of collosol manganese in furunculosis and in seborrhoeic eczema. I have used the preparation in the form approved by Sir Malcolm Morris—that is, in two solutions, half a cubic centimetre of each being mixed in the syringe and injected intramuscularly. The result is so good as to convince me that this treatment for the above conditions should have a wider use. The following are short notes of two cases:

Case 1.—Wounded on April 14th, 1918, in France; gunshot wound of left thigh. Following wound infection patient developed seborrhoea of scalp, trunk and limbs, specially marked on extensor surfaces of elbows and knees. For three months salicylic acid and ungt. picis were applied without benefit. On July 27th 1 c.cm. injections collosol manganese were commenced and given in all six times during the next month. Patient is now practically free from the disease.

Case 2.—Wounded on August 8th, 1918, in France; gunshot wound of cranium, and extensive burns from mustard gas. Multiple boils developed in both axillae. These had resisted treatment for three weeks during patient's evacuation to England, and were cured in a few days by two injections of collosol manganese.

It would be interesting to know whether extensive general seborrhoea often results from a wound infection as it did in Case 1.

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Reviews.

MEDICAL OPHTHALMOLOGY.

"IT seems to me the best and most hopeful feature of ophthalmology is that it has relations, closer or more remote, with every branch of medicine and surgery; indeed, with almost every branch of science." This saying is taken from a paper by Dr. James Anderson, which appeared in the *Ophthalmic Review* of 1889, and it was adopted by Hughlings Jackson as the conclusion of his presidential address at the annual meeting of the Ophthalmological Society of the United Kingdom in 1890. It now forms the text about which has been shaped the textbook of an American writer, a book written on ophthalmology from the standpoint of general medicine, and one which worthily accomplishes the aim of the author.

Medical Ophthalmology,[1] by DR. ARNOLD KNAPP, of New York, is one of a series of seven volumes of an International System of Ophthalmic Practice, which already include such well known books as Darier's *Ophthalmic Therapeutics* and Collins and Mayou's *Pathology and Bacteriology of the Eye*. This new work is worthy to rank with the best of these, and there can be no doubt that it will have a wide circulation amongst general physicians and ophthalmic surgeons; both parties will learn something to their advantage in the thoughts of the author.

The book is divided into fifteen sections. The first is an admirably written and illustrated section on the anatomy and physiology of the visual paths, the ocular nerves, the pupils, and cerebro-spinal fluid. There follow sections on diseases of the nervous system, and of internal secretions; on poisons and infectious disease; on diseases of the circulation, of the respiratory tract, and the digestive tract; on anaemia; diseases of the kidneys; on diabetes; on diseases of the female generative organs; of the osseous system,

[1] An International System of Ophthalmic Practice. Edited by Walter J. Pyle of Philadelphia. *Medical Ophthalmology*. By Arnold Knapp, M.D. London: William Heinemann. 1918. Pp. 509.

and of the skin; and, finally, on hereditary eye diseases. These sections may be regarded as a series of essays, for the style in which they are written is so easy; to read them is a pleasure rather than a labour, and the like cannot be said of the study of many textbooks on ophthalmology. The sections on anatomy and neurology are particularly well done and fill a large portion of the book; the two are so intimately connected, and relate to so large a part of the more interesting varieties of cases seen by the eye surgeon, that for these, if alone, the book is welcome. The section on chemical and microbic poisons is also of the same absorbing quality. That on infectious diseases is another of great interest; it includes not only an account of the eye affections to be found in the exanthemata, but also of those major infections—tuberculosis, syphilis, and gonorrhoea.

Not the least interesting feature of the work is the frequency of references to the work of British contributors to ophthalmic literature; for the author has drawn largely upon the *Transactions* of the Ophthalmological Society of the United Kingdom for observations on clinical conditions.

DISORDERS OF THE HEART.

THE fact that a fourth edition of Dr. THOMAS LEWIS'S book, *Clinical Disorders of the Heart Beat*,[2] has been required shows that it has been generally appreciated. A few new paragraphs have been introduced, but in the main the matter is identical with that contained in the third edition.

The most striking of the new statements concerns heart strain. Dr. Lewis does not believe there is sufficient evidence that a healthy heart is ever damaged by muscular exertion, however severe or prolonged it may be. He holds that the cases relied on to illustrate heart strain are, almost without exception, unrecognized examples of paroxysmal tachycardia, examples of heart poisoning from foci of infection, or examples of undetected structural heart disease. He instances the horse as the most heavily strained beast of which we have intimate knowledge, and states that in that animal heart affections are conspicuous by their rarity. Further, according to him, the commonly held belief that dilatation of the heart accelerates the pulse is erroneous.

In spite of being a fourth edition, this work probably remains the best short exposition of the subject with which it deals.

THE HUMAN INTESTINAL PROTOZOA.

THE differential diagnosis of the various forms of diarrhoea has always been one of the most difficult problems for medicine in the East, and, in order to deal with it efficiently, a thorough practical knowledge of the intestinal protozoa of man is essential. *The Human Intestinal Protozoa in the Near East*[3] is a volume designed to supply the needs of the medical man in this respect. The authors advocate certain rules for diagnosis. Many critics may consider it both wrong and impracticable to work by any rule on a subject of this sort, and no doubt theoretically they will be right. But we believe that the rules here set out approach the practical compromise necessary in dealing with large numbers of cases rapidly, a condition of affairs unfortunately unavoidable under military conditions. One advantage of such rules would be the standardization of the diagnosis and the consequent increase in value of the statistics compiled from army records.

The treatment of all these disorders is discussed at length in the volume before us, and the views expressed must carry great weight, based as they are upon a long series of careful experiments, the details of which are given in an appendix. Much hastily done and ill considered work has been published lately upon this hotly discussed question; most of it is in marked contrast with the steady and careful investigation of these authors. The experiments conducted with house-flies have an important bearing on the part played by these insects in the spread of amoebic infection. Although these experiments are suggestive, it is perhaps premature to conclude that the fly is a serious danger, from this point of view, until more confirmatory evidence has been produced. Details are also given of experiments designed to test the powers of resistance of the cysts of *E. histolytica* to various reagents. A conclusion of obvious practical importance at the present time is that free chlorine in the proportion of 1 to 10,000 has no effect upon the cysts even after prolonged exposure.

The careful treatment of the carrier question is one of the most useful features of the volume. We are glad to note that the authors conclude that a single laboratory examination is very unreliable—a fact which is being confirmed by other workers, and which cannot be too strongly emphasized.

THE MEDICAL ANNUAL.

The Medical Annual,[4] of which the thirty-sixth volume has now been published, continues to furnish the practitioner with a useful summary of progress in various departments of medicine and surgery, more especially from the point of view of advances in treatment. Part I treats briefly of certain drugs and other remedies reported on during the year, and contains a record by Dr. Thurstan Holland of recent work in radio-activity and electro-therapeutics, including new methods for the more exact localization of missiles. Part II, entitled "The Dictionary of Treatment," occupies the greater part of the volume, and is the work of many contributors; it contains the usual encyclopaedic survey of the various branches of practice. In the introduction an attempt is made this year for the first time to help the reader to facts which may be of special interest to him. It is inevitable in a work of this kind that information on the same subject is often to be found in articles belonging to different departments, and any editorial assistance in correlating them, both in the introduction and in the body of the work, is to be welcomed. Part III gives a short review of public health, including medico-legal and forensic medicine, State medicine, industrial diseases and toxicology, and a note on the school medical service. At the end of the work a classified list is given of the principal medical works and new editions published during the year, and a short directory of medical institutions, homes, and spas.

NOTES ON BOOKS.

THE revised edition of Dr. R. H. A. PLIMMER'S *Practical Organic and Bio-Chemistry*[5] may be described as a book indispensable to the physiologist, to the advanced student of organic chemistry, and to the biologist with chemical leanings. It contains a vast amount of chemical and analytical information, with cuts of the special pieces of apparatus required in many instances, and full details of the way in which the quantitative or qualitative tests recommended should be carried out. The book is admirably got up and printed, and may be strongly recommended to the attention of those for whom it has been written.

M. DE MARTEL has found little or nothing to alter or incorporate in his book on operative treatment of cranial wounds,[6] formerly published as part of a larger volume in the "Horizon" series, and now issued separately. In a new preface he points out that the most recent writer on the subject, Cushing, advocates a technique similar to his own. The similarities are obvious; the details can be learned, not from books, but only in the theatre, and it is just in attention to minute details that Cushing excels—no doubt M. de Martel also. The essence of the matter may

[2] *Clinical Disorders of the Heart Beat.* By Thomas Lewis, M.D., D.Sc., F.R.C.P. Fourth edition. London: Shaw and Sons. 1918. (Demy 8vo, pp. 120; 54 figures. 6s. net.)

[3] *Human Intestinal Protozoa in the Near East.* An Inquiry into some of the Problems affecting the Spread and Incidence of Intestinal Protozoal Infections of British Troops and Natives in the Near East, with Special Reference to the Carrier Question, Diagnosis and Treatment of Amoebic Dysentery, and an account of Three New Human Intestinal Protozoa. (Conducted under the auspices of the Medical Advisory Committee, M.E.F., January to August, 1916.) By Temporary Lieut.-Colonel C. M. Wenyon, B.Sc., M.B., B.S., R.A.M.C., Member of the Medical Advisory Committee, Director of Research in the Tropics to the Wellcome Bureau of Scientific Research, and Temporary Captain F. W. O'Connor, M.R.C.S., L.R.C.P., R.A.M.C. Published for the Wellcome Bureau of Scientific Research by John Bale, Sons, and Danielsson, Ltd., 83-91, Great Titchfield Street, London, W.1. 1917. (4to, pp. 218; with 5 figures, 4 black and white plates, and appendix. Price 10s. 6d.)

[4] *The Medical Annual, 1918.* Bristol: J. Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1918. (Pp. 716; illustrated. 10s.)

[5] *Practical Organic and Bio-Chemistry.* By R. H. A. Plimmer. London: Longmans, Green and Co. 1918. (Roy. 8vo, pp. xii + 584; 84 figures. 18s. net.)

[6] *Traitement opératoire des plaies du crâne.* By Dr. Martel. Second edition. Collection Horizon. 1918. Paris: Masson et Cie. (Crown 8vo, pp. viii + 106; 58 figures. Fr. 4.)

be put thus: Use local anaesthesia, remove the bone surrounding the lesion *en bloc*, cleanse the track; finally, dress all cases with the same care demanded for the original operation. This is a book for use at the front.

The volume on *Edible Oils and Fats*,[7] by Mr. AINSWORTH MITCHELL, is one of the monographs on industrial chemistry Sir Edward Thorpe is editing for Messrs. Longmans. It is written in a severely chemical spirit, but contains a chapter on the manufacture of margarine which is of general interest. In it and in other parts of the book an account is given of the production of solid fats by the hydrogenation of oils, a method which has produced a great change in the manufacture of margarine. The oil industry is one of the oldest in the world, for the extraction of oils from the olive was established in southern Europe in the earliest historical times. Mr. Mitchell describes modern methods of extraction, gives an account of the constituents of oils and fat, and describes the methods of extraction and purification as well as those employed by analysts for the examination of the products. The characteristics of individual edible oils are set out, and there is a chapter on butter and butter-fat. There is a very voluminous list of references, which will undoubtedly add greatly to the value of the book for laboratory use.

The new volume of the medical and surgical *Reports*[8] of the Hospital of the Protestant Episcopal Church in Philadelphia opens with two interesting historical articles. The first, by Dr. E. J. Morris, is a sketch of the history of the hospital, which was first opened in 1852; the other is by Dr. Belk on John Ashhurst, jun., who edited the international *Encyclopaedia of Surgery* in six volumes, was a great surgical teacher, and president of the College of Physicians of Philadelphia in 1898 and 1899. He was one of the founders of the Pathological Society of Philadelphia, and was a man with remarkably wide sympathies and activities. There are thirty-six other articles on professional subjects from the various hospital departments; of these a number are published here for the first time, such as Dr. R. E. Durham's case of pneumococcic meningitis treated by intraspinous injection of formalin with recovery, and Dr. Krauss's report on bilateral choked disc following thyroidectomy. In their article on intravenous protein therapy Drs. Robertson and Paul state that they are approaching the conviction that the reaction is non-specific, since any foreign protein, non-bacterial as well as bacterial, and other colloidal substances suffice. A case of a fish bone lodged in the liver and causing suppuration is reported by Dr. Crossan, who collected twelve other cases of foreign bodies found in the liver, in five of which symptoms were present during life; cases in which the foreign body entered the liver from without and measures for removal were immediately undertaken are not included.

Although the Medical School of Edinburgh has been much in evidence in the press during the last year, and various points of view have been brought out in Sir RICKMAN GODLEE'S life of *Lord Lister*, the late Dr. Margaret Todd's *Life of Sophia Jex-Blake*, and Dr. A. Miles's *Edinburgh School of Surgery before Lister*, the reader, especially if he worked there forty and more years ago, will welcome *The Reminiscences of a Student's Life at Edinburgh in the Seventies*.[9] The author veils his identity, which is a most kindly one, under the name ALISMA, and by providing a list of those graduating with him on August 2nd, 1875, tempts the reader to work out by some cipher the real name of his entertainer. He writes pleasantly of the life he looks back on, and enthusiastically of his teachers, of whom he gives thumb-nail sketches illustrated by old-time photographs. Attractively written, these reminiscences are appropriately introduced by the quotation, "Let us now praise famous men, and our fathers that begat us."

[7] *Edible Oils and Fats.* By C. Ainsworth Mitchell, B.A., F.I.C. London: Longmans, Green and Co. 1918. (Demy 8vo, pp. 159 + xii; 10 figures. 6s. 6d. net.)

[8] *Episcopal Hospital Reports*, vol. iv, 1916. Edited by Astley P. C. Ashhurst, M.D. Philadelphia: W. J. Dornan. (Med. 8vo, pp. 326; 105 figures.)

[9] *Reminiscences of a Student's Life at Edinburgh in the Seventies.* By Alisma. Edinburgh: Oliver and Boyd. 1918. (Pp. 115; 24 figures. Price 4s.)

THE late Mrs. Charles H. Colburn of Milford, Massachusetts, established by her will a fund of £20,000 in the Harvard Medical School to be applied to research in tuberculosis.

THE NEED FOR MEDICAL ADVICE IN PARLIAMENT.

A MEETING of the medical profession was held at Steinway Hall, London, on October 1st, under the chairmanship of Sir HENRY MORRIS, with the object of securing the election of representative medical men to the House of Commons so that expert advice may be available on vital questions of the national health. Between four and five hundred were present.

The CHAIRMAN, in opening the proceedings, said that, after the establishment of peace, neither the medical profession, nor the constituencies, nor Parliament would be the same as before. The medical profession was threatened with important changes both as to its organization and its social relations; the increased electorate would add to the burden of electioneering; Parliament would no longer be known as the Imperial Parliament but as the Parliament of the United Kingdom, while a Parliament of the Empire in some form or other was sure to be created. The promoters of the meeting had no idea of opposing any organization which might be working with a similar object, nor of impeding the action of any individual medical man who aimed at becoming a member of Parliament. Their first object was to get an executive committee appointed at a general meeting of the whole profession. This committee would seek out suitable members of the profession willing to stand for Parliament, drawn from the ranks of consultants, or general practitioners, metropolitan or provincial; or from specialists, medical officers of health, or from medical scientists. Although an early general election was in prospect this movement had not begun too late, because in any case it was desirable to prepare in good time for by-elections, or any subsequent general election. There had never been so favourable an occasion for the movement as now, when the war had brought home to the public the splendid work of the profession for the army, and to the profession itself the direction in which reorganization was needed. Foremost among the many subjects crying out for the presence of doctors in Parliament were health and education, and the application of scientific discoveries for the betterment of national health and the progress of national prosperity. The progress of science made it impossible for medical research and medical education to be self-supporting or to be properly conducted without State aid or philanthropic endowment or both. He asked whether a House of Commons as at present constituted was the best body for the settlement of such matters. It was high time that the profession made its importance to the State known to the public through the voices of capable and trustworthy medical men in the House of Commons. Medical representatives in Parliament should possess, first of all, the four qualifications which Hippocrates said should belong to every good physician—learning, wisdom, humanity, and probity; they should be familiar with public official life, and able to express themselves clearly and forcibly in public; they should have special experience in applying their knowledge of general medicine or surgery to problems of public health, medical jurisprudence, and medical education; and, lastly, without any indifference to the honour and interests of the profession, they should act, and make others realize their intention strictly to act, for the general welfare. While it would be unreasonable to expect any member of Parliament to ignore all political questions outside the scope of his calling, doctors as far as possible should be national rather than party in their politics. In conclusion the Chairman discussed the difficult question as to how the election of medical men to Parliament could be secured. There ought to be a way of getting the best brains of the profession into Parliament without the need of canvassing ordinary constituencies. If Parliament and the public had been alive to the need for medical legislation provision might have been made in the Franchise Bill for the direct representation of the Conjoint Medical Corporations in each of the three divisions of the United Kingdom, as there was of the universities. Failing this he suggested that the profession should have direct representation in Parliament, as it had on the General Medical Council. In the *Medical Register* there would always be a parliamentary register kept up to date, and the machinery would be easy and not expensive to work. He hoped the suggestion would commend itself to the profession and

the public, for if there were direct medical representation in Parliament the public would realize that medical men voiced the opinions of the profession as a whole.

Address by Dr. Addison.

Dr. Christopher Addison, Minister of Reconstruction, said that in preparing for the coming changes, and in shaping them, knowledge of the conditions and needs were above all things necessary. In the many matters closely affecting the foundation of national life and strength, matters affecting the homes of the people, their conditions of work, wages, and hours of labour, methods of production, training, education, and research, there would be a growing need for the assistance, experience, and guidance in all public affairs of men who had had the advantage of medical knowledge and practice. He asked his hearers to reject party labels; in Parliament and in public life, as in the home and business, the thing that really mattered was not what a man called himself, but what he could do, and what he would try to do. A medical man in Parliament was there as a representative of his constituents—the people—and if he wisely and honestly tried to promote the public interests, professional interests would be safe enough. Professional axe-grinders, short-sighted people grasping at an occasion to promote a sectional interest at the expense of the rest of the people, might appear to succeed for a time, but the end was failure. It was equally true that the public interest in the long run would suffer if an attempt were made to promote it by exploiting the services of a class. The help of the right stamp of medical man in Parliament and in public life would be increasingly valuable. The House of Commons, while tolerant and sympathetic towards sincerity and earnestness of purpose, if coupled with common sense, would not stand lecturing or dictation. Its customs were tedious and difficult to understand, but no one could be in it long without being conscious of the greatness of its power. The war had been rich in lessons as well as in achievement for those connected with medical and health services; but far beyond the direct prevention and treatment of disease there was need of similar guidance, gathering continuously the results of experience and research, with regard to the events of daily life—physical training, clothing, food, rest, state of the teeth, and so on. The proper working and relations of these many branches of the health services had been aptly described by Sir Bertrand Dawson as "team work." These things, which were being done for the army, should be made available for the mass of the people in order to remedy the grievous physical handicap under which the "C 3" population lived. Yet there was no one remedy, and no single road to success; improved national physique would depend on better homes and habits, better work places and conditions of life generally. In this matter the report of the Health of Munition Workers Committee contained a wealth of valuable guidance and information. Dr. Addison urged his hearers—not as individuals only, but as an organized profession—to extend their knowledge, experience, and responsibility to the public work of the country, to its laws, and administrative efforts. He continued:

In a speech which I made in February, 1914,[1] to a company of medical men, I referred to these things, and pointed out that as a first step it was necessary to bring together the assortment of different departmental responsibilities in health matters, and to secure that the thinking out and development of a systematic health policy commensurate with these most urgent national needs should be made the duty and responsibility of a definite body of men. We shall, and must be, the victims of sporadic, disjointed, and often conflicting effort until this is done. The war intervened, but during its progress it became more and more apparent that delay was dangerous, so that during 1917, when I was Minister of Munitions, at the request of Mr. Montagu and the late Lord Rhondda, whose clear mind in this as in other things at once gripped essentials, I presided over a small committee which examined the subject and presented a report on what we regarded as the absolute minimum of such a scheme.

During the past few months it has been my duty as Minister of Reconstruction to discuss the details of this important matter with representative bodies of different kinds, including representatives of a Joint Committee provided by the Colleges of Surgeons and Physicians and the Society of Medical Officers of Health, as well as with a Committee of the British Medical Association. Lately the whole proposals have been examined with great care by the Home Affairs Committee, and have now been passed by them to the War Cabinet for consideration. I shall be very disappointed, therefore, if proposals for this great reform are not presented to Parliament in the near future.

The Ministry of Health, however, will not itself be a health service. It will be its duty to secure the development and administration throughout the country of adequate health services. I may say that it is an essential part of the project that there shall be connected with the Ministry certain consultative councils, of which one must be medical, whose duty it will be to advise upon proposals, to make suggestions, and to afford the best advice it can give or obtain as to what is needed and how it can best be provided and administered. In this work the Government will hope to receive the help of the best minds of the profession, and what is needed in the central department ought also to be available in the different districts. There is, happily, amongst those who have examined these matters a great measure of agreement as to what is required—at all events, as a beginning.

In the Budget of 1914 Mr. Lloyd George had provided £1,000,000 towards improved health services, and we had in mind at that time improved nursing, midwifery, and laboratory facilities, together with the provision of clinics where consultations and specialists' services and what has been called "team work" might be promoted. The war interrupted these projects, and it may well be that the advice and assistance which will be available and the experiences of the war will suggest improvements. Developments of adequate health services will need the good-will and help of medical men, as well as of those familiar with the problems of local government, insurance, and other important services, and, if the subject is approached in a proper spirit, I am confident that they will be obtained. Those who are concerned with the business of government and administration, whether central or local, will have much to learn and will derive much help from such counsel, equally so I believe medical men will learn a good deal on their side. When we are dealing with the manifold traditions, relations, established practices and concerns of communities, those short cuts which seem so easy and so obvious to the arm-chair critic will not be found quite so simple in attainment. It would, I believe, be difficult to pay too high a tribute to the many public-spirited men up and down the country who have given of their time and of their best to assist in public administration, and who have achieved so much. It is no fault of theirs if means have not been devised whereby they might have the benefit of the suggestions and advice which the medical profession might make available for them. But the C 3 class and all that it implies means that the nation's responsibilities cannot end with water supply, drainage, the prevention of the spread of infectious diseases, the adulteration of food, and the like. With the advance of knowledge, science, and experience, we know that much can be done to safeguard the personal well-being of our people beyond what we have hitherto attempted, and in devoting its minds to this purpose, I believe that the medical profession has a great duty and an unexampled opportunity before it.

You will not, I know, take it amiss if, in conclusion, I add that success in public work and administration is not easy to obtain. It requires for most of us, at all events, labour, reading, preparation, and thought. The preparation for action at the right time and for meeting difficulties often entails much drudgery and painstaking examination of the case. When a project is successfully executed, it is seldom a matter of "its just happening so," or "a piece of luck." It is because the plan was right and the right means had been provided. A man who is not prepared to accept less than he would like to get is ill adapted for public work—commonly he gets nothing, for constantly things must be adjusted to interests and opinions contrary to but as legitimate as his own. With all that is needed, however, of tact, patience, and industry, nothing substantial will be carried through without courage and resolution—obstinate, persistent resolution—a resolution that knows how to wait without being weakened. Without it, lack of knowledge of the purpose and the obstructions of interest and prejudice cannot be overcome.

[1] British Medical Journal, 1914, vol. i, p. 379.

in the end also we must all rely upon the good sense and fair judgement of the mass of our fellow citizens to whom we are responsible. The claims of the community for the considered experience, good judgement, and help of medical men in the time before us are real and manifest.

Dr. Addison moved—

> That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons.

Discussion.

Dr. Arthur Latham, in seconding, said that medical men, who were the trustees of the health of the nation, had not been able in the past to make their views heard, much less to make them prevail. This was the result of absence of political power and of disunity among themselves. They had no organization capable of representing the considered opinions of the profession as a whole, nor had they been adequately represented in the House of Commons by men who were in touch with the problems of preventive and clinical medicine. The committee which called the meeting had had no desire to send men to the House of Commons merely to air the grievances of a class, but, on the other hand, they did not intend to tolerate the age-long exploitation of the profession. They recognized that the public interest must come first, but also that no scheme for the betterment of public health could be other than sterile which had not the goodwill of the doctors behind it.

Mr. E. B. Turner said that the right men for the House of Commons would go there, not purely as consultants nor purely as general practitioners; they must be politicians, of course, in order to be elected at all, but this would not be incompatible with the carrying out of their trust as members of a learned and scientific profession. They wanted men who could catch the attention of the House, as Sir Watson Cheyne did in his maiden speech, and who, although their voting power might be small, would carry the House with them to a sensible conclusion. As a result of his own experience of audiences of all kinds in connexion with the campaign for combating venereal disease, Mr. Turner believed that the doctor who went before the public with a well-defined health programme would have a very good chance of success in any evenly-balanced constituency.

Sir Watson Cheyne pointed out that they could not hope to get sufficient medical men into Parliament to form a party and influence the Government by their votes; they must influence the Government by their judicious utterance. In the forthcoming election, indeed, it would hardly be possible for many more medical men to be returned; and therefore the best policy (he added amid laughter) would be to help those who were in already. He thought also that it was very necessary that such medical men as were in Parliament should get together and try to be unanimous as to any line of action affecting health.

Colonel John Kynaston appealed to Dr. Addison to put the resolution on a more democratic basis by removing the word "representative." What were wanted were not representative medical men but medical men as representatives of the people in Parliament. This suggestion was adopted, and in the form in which it was carried the resolution ran:

> That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by medical men to represent constituencies in the House of Commons.

Dr. E. F. White moved, and Mr. Lockhart-Mummery seconded:

> That a representative committee be appointed for the purpose of (1) nominating medical men as being suitable to voice the opinion of the profession in the House of Commons on matters affecting the national health; (2) taking such steps as may be possible to further the election of those nominated to the House of Commons; and that this committee report to a subsequent general meeting of the profession.

Colonel Kynaston objected to the procedure outlined in this resolution, and urged that if a medical man was properly brought forward by any party in any constituency steps should be taken for the furtherance of his election to the House of Commons.

Dr. Camac Wilkinson said that to proceed on the lines suggested in the resolution would be to end in a cul-de-sac. The tone of such a meeting was not exactly that with which elections were won. What they wanted to find out was whether there were any medical men ready to go into the constituencies, and possessed of general political ideas and principles.

Dr. H. B. Brackenbury also criticized the resolution. He thought it a pity to multiply committees. For six months a committee of the British Medical Association had been engaged upon this subject, and to establish rival or alternative committees would only reflect the disunity of the profession. Not only did they want unity, but also money for meeting election expenses if not for maintaining representatives, and finance would condition the committee's work. He pleaded for a more tentative procedure.

Mr. Bishop Harman also referred to the work of the British Medical Association's committee, and his statement that it represented 23,000 medical men was received with some dissent.

A number of speakers expressed disagreement with the resolution, and ultimately an amendment by Mr. Sheriff W. R. Smith of the City of London was adopted; this had the effect of altering the resolution into the following:

> That a representative committee be appointed for the purpose of taking such steps as may be possible to further the election of medical men as members of Parliament; and that this committee report to a subsequent general meeting of the profession.

In this form the resolution was carried by a large majority.

Sir Thomas Horder, in moving a resolution defining the composition of the committee, pleaded that the committee might be trusted to work with any other body and in any promising direction. It was proposed that the committee should consist in part of representatives nominated by the Royal Colleges of Physicians and Surgeons, the Royal Society of Medicine, the British Medical Association, the Incorporated Society of Medical Officers of Health, the Medical Society of London, the Medico-Political Union, the Medical Women's Federation, the Poor Law Medical Officers' Association, and the State Medical Service Association. In response to suggestions, the Royal Army Medical Corps, the British Dental Association, the Royal Institute of Public Health, and the National Medical Union were included, and with these additions the proposal was carried without dissent. It was also agreed to include the editors of the British Medical Journal, the *Lancet*, and the *Medical World*.

Sir Thomas Horder then moved that eighteen unofficial representatives should be elected by the meeting, and this was carried with a few dissentients. The names, which appeared on a ballot paper already distributed, were as follows:

> Mr. Ernest Clarke, Dr. Coke (Ashford), Dr. R. C. Gibbons, Dr. W. Hodgson (Crewe), Sir Thomas Horder, Mr. Lockhart-Mummery, Dr. Arthur Latham, Dr. Logan (Ashby-de-la-Zouche), Dr. Lyth (York), Dr. H. M. McCrea, Dr. J. A. Macdonald, Dr. Howard Marshall, Sir Henry Morris, Dr. E. H. M. Stancomb, Dr. Barbara Tchaykovsky, Mr. E. B. Turner, Dr. Jane Walker, and Colonel Woodwark.

Some discussion took place with regard to a statement on the ballot paper that those who had left the meeting without handing in their papers should be counted as having voted in favour of the names as they stood. Major Henry Chapple, M.P., vigorously protested against this procedure, and the Chairman withdrew the offending clause. Scrutineers were appointed, but the result was not determined before the meeting separated.

According to Dr. Avendaño, professor of forensic medicine at the University of Lima, a tribunal for the adjudication of medico-legal questions was established in 1570 by a decree of Philip II, and continued in existence till 1851. In the sixteenth century it concerned itself mainly with burial and embalming; in the seventeenth, cases of sudden death were investigated; in the eighteenth, Caesarean section *post mortem* was carried out on the bodies of women who had died in childbed. In the nineteenth century a special institute was founded with a toxicological laboratory and a *post-mortem* room. The institution is under the combined authority of the Government, the police, and the medical faculty. It is a fine and well-equipped building. Professor Avendaño calls for the establishment of a medical and juridical institute, with a staff of chemists, psychiatrists, and jurists supplied by the faculty of law.

British Medical Journal.

SATURDAY, OCTOBER 5TH, 1918.

MEDICINE AND THE STATE.

THE meeting held in London on October 1st to consider the means which could be taken to secure the election of medical men to the House of Commons was interesting from several points of view. In the first place, it was evidence that the Gallios of the profession were beginning to realize that their attitude was mistaken, and that of the British Medical Association in giving early attention to this matter far-sighted. Another interesting incident of the meeting was the very plain speaking of the Minister of Reconstruction. On the one hand he declared that there was a growing need in Parliament for the assistance, experience, and guidance in all public affairs of men who had the advantage of medical knowledge and experience. On the other hand, while asking medical candidates to reject party labels, he maintained the constitutional principle that any man who entered the House of Commons did so as a representative of his constituents, that is of the people, and not of any sectional interest. In this way he seemed to put aside the suggestion of the chairman that there should be some special representation of the medical profession in the House of Commons, either through the conjoint medical corporations in each of the three divisions of the United Kingdom or by direct election, as in the case of its direct representatives on the General Medical Council. Whatever value there may be in Sir Henry Morris's proposal it is clearly not within the sphere of practical politics at the present time, when the task before the country is the election of a new House of Commons in accordance with the provisions of the Reform Act of this year. The upshot of Dr. Addison's advice is that any medical man who enters Parliament must do so with the object of wisely and honestly promoting the public interests, for then, he said, professional interests would be safe. At the same time he admitted that the public interest, in the long run, would suffer if attempts were made to exploit the services of any class, such as the medical profession. The medical profession labours under the well-founded apprehension that Parliament may be induced to exploit it in the supposed interests of the public, and it is this feeling which has given force to the movement within the profession, of which the meeting on October 1st was additional evidence, in favour of making a serious effort to obtain a considerable number of medical representatives. Mr. Turner put the matter in a few words when he said that medical members of the House of Commons, though they must be politicians in order to be elected at all, would still be able to carry out their trust as members of a learned and scientific profession.

The case for an increased number of medical members of the House of Commons rests in the final resort on the need of that House of the assistance, experience, and guidance it would thereby receive in dealing with the many questions affecting the health of the people which are pressing for solution. In this connexion thought will immediately turn to the question of a Ministry of Health, and Dr. Addison was able to say that proposals for its constitution had been examined by the Home Affairs Committee, and had been passed on by it to the War Cabinet for consideration. It appears probable, therefore, that a bill for the establishment of a Ministry of Health will be presented to Parliament in the near future, but Dr. Addison went on to point out that its scope would be limited. The Ministry will not itself constitute a health service, though it will be its duty to secure the development and administration of adequate health services throughout the country. What is in mind may be gathered from the list of purposes to which the million Mr. Lloyd George had intended to provide in the Budget of 1914 would have been devoted; they were improved nursing, laboratory and midwifery facilities, and the provision of clinics where consultations and specialist services, with team work, might be promoted. A further point of importance is that the Government recognizes that an essential part of its project for a Ministry of Health must be the institution of certain consultative councils, of which one will be medical, to make suggestions and to afford the best advice that can be given or obtained as to what is needed, and how it can best be provided and administered. Dr. Addison's statement agrees with information previously obtainable, to the effect that the bill contemplated is a relatively small bill, in which no attempt will be made to establish a state medical service.

The final result of the meeting was a resolution to the effect that in the interests of national health the considered views of the medical profession should be expressed by medical men representing constituencies in the House of Commons. It was decided to appoint a committee to further this object. The list of this committee is not available, but, judging from the rather confused proceedings at the end of the meeting, it would appear that the intention is to make it very comprehensive and to ask the British Medical Association to nominate representatives. The Association has already taken steps to gather information and opinions from meetings held in the Divisions throughout the country; it is also seeking to establish a fund for the support of the parliamentary candidature of medical men whose past work and experience have proved their knowledge and loyalty to the interests of the medical profession.

MENINGOCOCCIC CARRIERS AND MENINGITIS.

A VALUABLE report upon the seasonal outbreak of cerebro-spinal fever in the navy at Portsmouth, 1916–17, has recently been made to the Medical Research Committee by Honorary Staff Surgeon Paul Fildes, R.N.V.R., and Temporary Surgeon S. L. Baker, R.N.[1] Their well-reasoned conclusions as to the epidemiology of the disease, based on an enormous number of routine examinations, modify in some respects the current views on the subject, and, though partially published elsewhere, deserve careful consideration. With the object of minimizing the incidence of cerebro-spinal fever in the service, Surgeon-General Sir Arthur May, the late Director-General of the Medical Department of the Royal Navy, ordered that the throats of all new entries should be examined so as to detect meningococcic carriers. In accordance

[1] Medical Research Committee, National Health Insurance, Special Report Series, No. 17. I. A Report upon the Seasonal Outbreak of Cerebro-spinal Fever in the Navy at Portsmouth, 1916–17. By Honorary Staff Surgeon Paul Fildes, M.B., B.C.Cantab., R.N.V.R., and Temporary Surgeon S. L. Baker, R.N. II. The Treatment of Cerebro-spinal Meningitis by Antimeningococcus Serum at the Royal Naval Hospital, Haslar, 1915–16–17. By Staff Surgeon G. P. Adshead, M.B., Ch.B., R.N. Published by His Majesty's Stationery Office. 1918. (Pp. 154. Price 2s. 6d.).

with this regulation, an average of 270 new entries were examined weekly at Portsmouth during 1916 and 1917, and an opportunity was thus provided, and utilized to the full, of throwing fresh light on problems associated with the disease. The probably unique experience of examining swabs from the throats of twenty-six cerebro-spinal fever patients, at intervals of from two to seventy-five days before the onset of symptoms, gave a negative result in every instance, and among 485 known carriers no case of the disease, or of slight meningeal symptoms suggesting a mild meningococcic meningitis, occurred. These observations are important in controverting the rather widespread assumption that a carrier stage precedes the onset of the disease, and in proving that the interval between infection of the throat and systemic generalization, or the incubation period, may be very short. Further, the throats of the patients a few days after the onset of symptoms were as often as not free from meningococci, and were seldom so heavily or persistently infected as ordinary carriers; for this and other reasons it is highly probable that a patient is not responsible for the presence of carriers among his contacts. No direct evidence was forthcoming of infection of an individual from a patient, and it appears that a case is more unlikely than a carrier to spread the disease. A close relation is shown to exist between the frequency of meningococci in the throats of the general population and the incidence of cerebro-spinal fever; both are high in the winter and spring, and low in the summer. During a transient epidemic of carriers an individual occasionally develops cerebro-spinal fever, which is therefore a more or less accidental by-product of the throat epidemic, and here it may be recalled that the special Advisory Committee of the Medical Research Committee "upon bacteriological studies of cerebro-spinal fever during the epidemic of 1915" stated that "the epidemic is not one of cerebro-spinal fever as such, but what may be termed a 'saprophytic epidemic' of the meningococcus in the throats of the population at large." Drs. Fildes and Baker conclude that when a case of cerebro-spinal fever occurs, it is because a susceptible person is in contact with a high proportion of carriers. New entries are especially prone to the disease; thus out of 46 cases 36 were in new entries, and the authors consider that this etiological factor is more important than youth. The average duration of the positive state among 360 carriers was 1.3 months, there being 212 mild carriers with an average duration of 0.45 month and 148 chronic carriers with an average duration of 2.6 months.

The authors confirm Lieut.-Colonel M. H. Gordon's contention that practically all meningococci found capable of causing the disease belong to one of four types, and from this it follows that practically all cocci which cannot be shown to conform to one of these four types are incapable of causing the disease, and that Gordon's four types are of great importance in practical diagnosis. But for general epidemiological purposes they consider that pathogenic meningococci consist of two groups, thus agreeing with Andrewes and others, containing Types I and III and Types II and IV respectively, corresponding to the meningococci and parameningococci of other authors. Of the 46 cases 29 belonged to Types I and III and 16 to Types II and IV, but among their contacts the carriers of Types II and IV were very much commoner than the carriers of Types I and III, which must therefore be considered to be more pathogenic.

The great bulk of the epidemic and sporadic carriers were due to the less pathogenic Types IV and II meningococci, the more pathogenic Types I and III meningococci only appearing in epidemic numbers during the winter. The results of treating carriers by antiseptic sprays were disappointing, as it appears that 33 per cent. of the carriers recover without any treatment, while 40 to 50 per cent. are cured by any form of treatment; the difference between these two recovery rates it is considered is due not to the efficacy of treatment, but to the fact that the two figures are calculated from two different series of men. It would be interesting to hear what practical measures in dealing with the whole carrier problem appear most advisable in the light of these various observations.

A study of 106 out of 500 strains of meningococci isolated from the nasopharynx shows that while Flexner's serum practically always agglutinates true meningococci, a positive result cannot be regarded as absolutely diagnostic of epidemic strains, because a considerable proportion of the throat strains so agglutinated cannot be classified by Gordon's absorption tests—in other words, it gives too many carriers. As a means of diagnosis agglutination tests with the patient's blood serum appear to be valueless. Staff Surgeon Adshead gives a good clinical account of 71 cases treated almost entirely by Flexner's serum with a mortality of 19, or 26.7 per cent., but an attempt to discover if there was any conformity between the type of meningococcus found in the 46 cases mentioned above and the clinical symptoms and mortality did not lead to any conclusion.

THE GRAND OLD MAN OF FRANCE.

The French Prime Minister, or President of the Council, to give him his proper style and title, entered on his 78th year on September 28th. As he is a doctor of medicine, we venture to offer our congratulations, in which we are sure the whole profession of the allied nations will join, on the magnificent work he has been spared to do for his own country and her allies. Georges Benjamin Clemenceau was born at Mouilleron-en-Pareds in La Vendée in 1841. He comes of a Protestant and bourgeois family, not of peasant stock, as has sometimes been asserted. He began the study of medicine at Nantes, and went to Paris in 1860, where, after holding the post of hospital interne, he graduated in 1865. He had been a pupil of Robin, and not unnaturally therefore chose as the subject of his thesis the genesis of the anatomical elements. Man was described as a federation of anatomical elements, and the view was put forward that disease is not an entity distinct from the human body, but an alteration in physiological processes. This essay was the foundation of a work entitled *La mêlée sociale*, which appeared in 1894. Clemenceau practised for a short time in Montmartre, and then went to America, where he remained five years. Being indifferently successful as a doctor, he became a teacher of French in a college, and married an American lady. On his return to France in 1869 he again practised at Montmartre, where at the age of 19 he had been in prison for shouting "Vive la République" in the street, and on the fall of the Empire he was elected mayor of Montmartre, and in 1871 was returned to the National Assembly as member for the Seine department, sitting on the Extreme Left. In the same year he was elected a member of the Paris Municipal Council, a body which he had taken a leading part in bringing into existence. In 1876 he was returned to the Chamber of Deputies for the 18th arrondissement of Paris (Montmartre), and in 1885 became member for the Var department. In 1893 he was defeated after sitting in that Chamber continuously since 1876, but was again returned in 1903. In 1906 he was Minister of the Interior, and in the same year he

became Premier, resigning in 1909 on a question of naval efficiency. On the resignation of Briand in 1917 he again became Prime Minister. Clemenceau for many years preferred to remain in opposition, and his success in overthrowing cabinets earned for him the name of Tombeur de Ministres. His war belt was decorated with the political scalps of Gambetta and Freycinet (1882), Jules Ferry (1883), Brisson (1885), and Goblet and Grévy (1886). He drove Cavaignac from office and broke Boulanger, whom he had helped to make for a brief period a national idol. Clemenceau owes a great deal of his influence to his strength and brilliancy as a journalist, which made him a mighty force in a country where journalism leads to the topmost heights of fame and power. In 1888 he founded *La Justice*, which he continued to direct till 1900. From 1900 till 1902 he was editor of *Le Bloc*. In 1903 he started *L'Aurore*, in which appeared Zola's famous "j'accuse" letters in vindication of Dreyfus. In 1914 he founded *L'Homme Libre*, which in the early days of the war was suppressed by the Government, but immediately came to life again as *L'Homme Enchainé*. When he became Prime Minister *L'Homme Libre* was revived, but Clemenceau now appears in it not as a contributor, but as "Fondateur." His style has the quality of precision and terseness, and his arguments are always telling and logically marshalled. Outside journalism he has written, among other literary works, *Le Grand Pan*, *Le Voile du Bonheur*, *Aux Embuscades de la Vie*, and a play entitled *Les Requins*. In his fiery youth he was a formidable duellist, and among many others he fought Deschanel, Drumont, and Déroulède; he is a left-handed swordsman, whom even Paul de Cassagnac, the great swashbuckler of the Second Empire, did not care to meet. His knowledge of English and the acquaintance with the temper and working of the Anglo-Saxon mind gained in America helped to form the strong bond of friendship with this country which has done so much to maintain mutual confidence among the Allies. Besides this, he is one of the few public men who understood the aims of Germany, and was not frightened by the stagey threatenings of the mailed fist. Clemenceau wrote before the war: "What is quite intolerable is the pretension to make the whole world tremble when the Kaiser knits his brows, and to expect us to rejoice effusively when His Imperial Majesty condescends to favour us with a smile. The peace of Europe cannot be based upon the changeable disposition of this sovereign. To-day he is in a good humour; so much the better. To-morrow he will be in a bad humour; that is his own affair. For our part, we need a guarantee for our speculations as to the future which is independent of one man." At the time of the Casablanca difficulties nearly ten years ago Germany blustered in her customary way. Bülow, then German Chancellor, summoned the French Ambassador at Berlin and said to him: "Monsieur, a German consular agent has been maltreated by your people in Morocco. Our honour demands that your Government should apologize. If you do not, we shall recall our ambassador in Paris. Go and tell that to your chief." The French Ambassador at once took train for Paris and told Clemenceau what had occurred. The French Premier in turn summoned the German Ambassador, Prince Radolin, to whom he repeated what the French Ambassador had said. Then, after a slight pause, he exclaimed: "Apologize! Never, sir! No apologies! And if you wish to leave Paris nothing shall stop you. Leave at once! Go to-night, before they recall you. France makes no apology." Some hours later Radolin returned with the explanation that he had exceeded his instructions. Clemenceau goes to bed at 8, gets up at 2, and works till 8, when he receives visitors. He lunches at 11, and after an hour in the Bois, devotes the rest of the working day to his duties, including frequent visits to the front. Surely one of the greatest of "grand old men"! It is well indeed for France and for the world that such a man is directing the tremendous destructive power, of which his whole career gives abundant proof, to the smashing of the system of autocratic militarism which has been for many years a standing menace to the peace and happiness of mankind.

RATS AND MICE.

IN an article in the JOURNAL of July 6th last on plague in Suffolk we drew attention to a useful leaflet that had just been issued by the Board of Agriculture and Fisheries on the destruction of rats.[1] We have now received from the trustees of the British Museum a larger pamphlet upon somewhat the same lines entitled *Rats and Mice as Enemies of Mankind*,[2] by Mr. M. A. C. Hinton. It should bring home to everybody the enormous damage done to essential food supplies by these destructive creatures, as well as the part they play in the dispersal of some of the most serious diseases that affect the human race. A short but clear account is given of the habits and breeding capacity of rats and mice; their relation to disease is explained, and the possibility of their extermination is discussed in the light of the most recent knowledge. Although the war has not been allowed to interfere with the catching of rats at our chief ports, it has very seriously interrupted and discouraged such work in ordinary towns and rural districts. Labour which was formerly employed in rat extermination has been diverted into other channels, while the food economy campaign has given rise to a series of regulations which in effect prohibit the use of all food for bait. The result, says the author, is deplorable. "From all parts of the country come complaints of a great increase in the numbers of rats present, and of the great damage they are doing to ordinary agriculture as well as to the produce of the allotment holder." The great national effort to develop the internal sources of food for mankind has, unfortunately, in like proportion increased the capability of the country to support rats. Hence it is imperative for our safety that steps should be taken to destroy rats. Mr. Hinton maintains that despite their enormous fertility we possess ample means for exterminating them if we have a mind to do so; but these means will not avail until every one is convinced of the necessity for using them whenever and wherever possible. Above all things organization, co-operation, and persistence are essential. Spasmodic, individual, or purely local attempts can bring no real relief; the work of systematic destruction must be undertaken simultaneously all over the country, and must be continued as long as a breeding stock of rats remains in this island. The various measures for prevention and extermination are described, and it is to be noted that the author has no enthusiasm for any kind of virus now on the market. The Board of Agriculture leaflet expresses much the same opinion, thus: "The uncertainty with which this method is attended is due partly to the difficulty of securing a successful infection in all cases and partly to the fact that, if only slightly infected, rats recover and thereafter become more or less immune to the disease." Mr. Hinton, indeed, characterizes viruses as costly, variable in their virulence, requiring considerable skill in their use, possibly harmful to other animals, and in short not to be recommended as a safe and thoroughly reliable means of destruction. Of the many other methods it would seem that reliance must not be placed on any one, but all should be employed as far as possible in a combined effort, methodically undertaken throughout the country. Mr. Hinton recommends that the men engaged on this work should be paid by settled wages and not by a capitation fee, because if a premium is paid for each rat, the rat-catcher will leave a farm as soon as rats become scarce, and before he has finished his work, for another which promises a bigger bag.

[1] Leaflet No. 244, free of charge and post free on application to the Secretary, Board of Agriculture and Fisheries, 3, St. James's Square, S.W.1.

[2] *Rats and Mice as Enemies of Mankind*. By M. A. C. Hinton. London: Printed by order of the Trustees of the British Museum. 1918. Price 1s.

As for the mouse, while less repulsive than the rat, this prolific little rodent is immensely destructive, as countries which have been visited by periodical "mouse plagues" know to their cost; while from the public health standpoint much of what is laid to the score of rats applies equally to mice. It must also be remembered that if we should succeed in exterminating or greatly reducing our vast rat infestation (estimated at more than forty million), it is more than likely that this disturbance of the balance of nature would operate in favour of the house mouse and its cousins the other small muridae. Accordingly, mouse destruction must be undertaken at an early stage in any general campaign against rats.

BRITISH SPAS.

Before the war the habit of visiting Continental spas was very firmly established among certain classes in this country. The habit has been broken by the war. German and Austrian spas are closed and the Permit Office will with difficulty grant authorizations to visit those French and Italian spas which are still maintained in their usual efficiency.[1] In consequence, attention is more and more directed towards an appreciation of the advantages offered by British spas. Harrogate, Buxton, Woodhall Spa, Cheltenham, and Bath are able to offer different types of waters and treatments, and also a variety of climates to meet the various requirements of invalids. The climate of Buxton and Harrogate is tonic and dry, and there is protection from cold winds. Woodhall Spa has an agreeable climate at this season and the value of Cheltenham and Bath as winter resorts is well known. All these spas have taken advantage of the opportunity afforded to them during the past four years to make further provision for the comfort, convenience, and assistance of patients. Harrogate boasts that it possesses over eighty curative waters, and it has been enterprising in introducing any new treatment that has received medical recognition. Among the latest methods so introduced are aërated baths and whirlpool baths, the Harrogate-Bergonie treatment and special forms of electrical treatment; the paraffin wax bath is now to be installed. The advantage of putting a spa under the advisory direction of a committee of medical men has been recognized at Cheltenham, and the principle is gaining ground. Sir Bertrand Dawson, in his Cavendish Lectures, laid down the proposition that technical matters must be decided by medical men, and the practice of putting the skilled under the control of the unskilled must cease. In the same address, when discussing his scheme for preventive sanatoriums, he said that the spa was an example of its application on a larger scale, with the patients resting from their ordinary avocations. He insisted that the natural waters, while a useful adjunct, were subsidiary to climate, position, and the careful organization of regimen and environment, physical and mental. The management of a spa, he said, presupposed guidance and control by the doctors, acting in conjunction with a far-sighted municipality, ready to spend adequate capital in laying out its resort on generous and comprehensive lines, and it presupposed also hotels designed and administered for those in search of health. His ideal spa would be in a good natural position, planned so as to present the various treatments efficiently, though pleasantly, and in an environment of beauty and repose. It should provide physical culture in various forms, including ample accommodation for games, baths and all forms of hydrotherapy, electrical treatments, music and other entertainments, and suitable dietaries so arranged as to be attractive and not irksome. We are afraid that it is especially in this last respect that British spas had dropped behind their German and Austrian competitors. We suspect that Sir Bertrand Dawson is right when he says that so far no resort in this country fulfils the conditions he lays down, although many of them possess the natural advantages. We believe that the public will be disposed in the future to frequent British in place of foreign spas, many of which will be closed to them, but that the road to success must lie through a plan which places the whole machinery for the good of the patient under medical control. It is not sufficient to provide powerful waters and many sorts of baths unless attention is given to the whole course of the visitor's life in the spa, including his diet. The entire machinery must be adjusted to restore the sick to health.

[1] British Medical Journal, September 21st, 1918, p. 324.

THE NEW MEDICAL SESSION.

The opening of a new winter session was marked this year again by few public gatherings at the metropolitan medical schools. The Director-General of the Army Medical Service, Lieut.-General Goodwin, presided at the distribution of prizes to successful students at the Middlesex Hospital on October 1st, when Dr. C. H. Browning, Director of the Bland-Sutton Institute of Pathology, gave an address on the significance of research work in connexion with national health, in which he argued that until recently the fundamental importance of laboratories as a weapon of offence against disease had received only sporadic recognition, and their pioneer work had not been fostered by any firmly directed policy of encouragement. The necessity for safeguarding a gigantic army against epidemic disease had, however, brought into prominence the indispensable functions of the laboratory. Lister's application of Pasteur's principle marked the advent of the laboratory epoch in the prevention and cure of disease. The routine work of the hospital laboratory, which had become to a large extent fixed and accepted, was of inestimable value to the individual patient and to the medical man, but it was misleading and harmful to progress to describe it as clinical research, for it was of very little value in furthering the progress of medicine. The proper function of the research laboratory was to co-operate with the clinical staff of the hospital in planning and carrying out massed attacks on disease. At King's College Hospital the chairman, Viscount Hambleden, referred to the proposed amalgamation of that hospital with Westminster Hospital, which was discussed in the Journal of August 17th, and said that before any steps were taken the decision of the Westminster Hospital authorities would have to be made known. The inaugural address was delivered by Surgeon-General Sir Watson Cheyne, who in welcoming the new and old students announced that women were now for the first time to be admitted to the medical school. Institution after institution, he said, had thrown open its degrees and diplomas to women medical students, and the war had now given medical women their opportunity; they were being called upon not only to replace medical men who had gone on active service, but to assist in carrying on the work of base hospitals. King's College Hospital had thrown open its doors to women without restriction, and both teaching appointments and scholarships would be open to them in equal competition with men. He was quite sure that this innovation would be repaid to the institution many times over. At the annual prize distribution at Charing Cross Hospital Medical School Mr. G. Verity, chairman of the governors, announced that the hospital would celebrate its centenary in 1919, and expressed the hope that the establishment of a great pathological and bacteriological laboratory would signalize this landmark in its history. Messages appreciative of the voluntary hospitals and their medical schools were read from the President of the Local Government Board and the Minister of Reconstruction, and Dr. W. J. Fenton, Dean of the College, reported that all the male students who qualified during the past year had gone on military service. At the opening ceremony at the London (Royal Free Hospital) School of Medicine for Women, the Dean,

Dr. Louisa Aldrich-Blake, offered a warm welcome to the hundred new students who have entered the school this session, and Dr. Flora Murray, physician-in-charge of the Military Hospital, Endell Street, gave a short address on the character and inspiring lifework of Elizabeth Garrett Anderson.

RAYNAUD'S DISEASE AND SECONDARY SYPHILIS.

THE well recognized association of Raynaud's disease with syphilis—congenital or acquired—rests on a positive Wassermann reaction, the history of a former infection, or on the coexistence of angina pectoris, aortic disease, tabes, or paroxysmal haemoglobinuria. In very rare instances Raynaud's syndrome has occurred during the active stage of syphilis. For example, Lévy-Bing and Gerbay[1] reported last year a case in which a chancre was noticed on February 10th, generalized roseola on March 10th, and Raynaud's syndrome on March 15th. The main manifestation was cyanosis of the hands, and the patient was completely cured by injections of galyl and nov-arsenobenzol. The authors were able to find records of only two other cases of Raynaud's disease occurring in the course of secondary syphilis—that of Druelle six months after infection, and that of Gaucher, Claude, and Croissant three months after infection; both also cured by antisyphilitic treatment. Lévy-Bing and Gerbay suggested that Raynaud's disease is due to endarteritis obliterans and not to vasomotor spasm; but it might also be urged that cases such as theirs, regarded as Raynaud's disease in secondary syphilis, are merely due to luetic endarteritis obliterans.

PHARMACY AND THE FUTURE.

THE opening meeting of the 77th session of the School of Pharmacy of the Pharmaceutical Society took place in the Examination Hall, 17, Bloomsbury Square, on October 2nd. The President, Mr. W. L. Currie, was supported by Dr Addison, Minister of Reconstruction, Colonel Lord Gorell, Surgeon-General Sir W. H. Norman, Director-General of the Medical Department of the Navy, Lieut.-General T. H. J. C. Goodwin, Director-General of Army Medical Service, Professor H. G. Greenish, Dean of the School, Mr. W. S. Glyn-Jones, M.P., Secretary, and the members of the Council of the Society. The Dean reported on the work of the School, and the prizes were presented by the President. Dr. Addison acknowledged the services that had been rendered by the Pharmaceutical Society to the Government during the war. He remarked that the greatest danger to much of our trade and industry had been German organization, training, and method, especially in the application of physical science. Without being original themselves, they took hold of the ideas of others, often British in their origin, and applied and developed them with painstaking thoroughness, so that in many British industries they had been gradually acquiring a greater power than they would ever have gained by force of arms. The British nation needed a far more thorough and comprehensive application of science to industry and production in an organized form than they had hitherto sought to obtain. Dr. Addison spoke also of the rude awakening we had had soon after we went to war because of our dependency on Germany for many drugs and fine chemicals, and of the efforts—in which the Insurance Commissioners, with the assistance of bodies like the Pharmaceutical Society, had played a leading part—which had been successfully taken to cope with the difficulties arising from this cause. The result was that to-day there were none of those medicinal preparations of great importance that were not being made in amply sufficient quantities in this country. The story of our combat with the drugs supply would provide a most interesting and attractive example of many of our national achievements during the war. The particular lesson standing out therefrom was that we must have a much better supply of trained chemists, and he was disposed to think that industry in future would offer wide and well paid opportunities to highly trained chemists. But science in industry was not to be bottled up in laboratories; it needed a wider range and a freer field, so as to be able to survey in full detail methods of production and manufacturing processes in all their ramifications. The remedies which those in charge of such matters in the naval and military services had called for as of special importance were for the most part complicated synthetic bodies—the work of the laboratory, rather than the old-fashioned traditional drugs and concoctions which cumbered the dispensary shelves and filled out the *Pharmacopoeia* in times past. For the nature of remedies tended to become more complex and their numbers fewer, and as the advance of science brought changes in the methods, appliances, and medicaments used by the physician and surgeon, so as a corollary would there be changes in the demands made upon the pharmacist. The whole field of medical science had so enlarged that, despite the increasing length of the curriculum imposed on medical students, the time spent on learning anything about pharmacy was very small. And this was as it should be, for the modern medical man had so much to learn and such increasing possibility of utilizing that knowledge in performing the functions strictly pertaining to his own vocation, that the need for ridding himself of all extraneous duties would be more and more felt. It should be our aim to secure the best direction of the efforts of all those engaged in one or other of the many units forming part of the army whose duty was the fighting of disease. The history of legislation and public effort upon these subjects was a long story of compromise and muddle. The physicians, the surgeons, the general practitioners, the dentists, the pharmacists, the midwives, the nurses, were all allied armies fighting the enemies death and disease. Once bring them under a unified command, and their power for conquering the common foe would be enormously strengthened. In the future there must be more community of counsel and direction as to what should be the scope of the technical training, the standard of qualification, and the functions allotted to those engaged in the different branches of the service.

THE QUATERCENTENARY OF THE ROYAL COLLEGE OF PHYSICIANS.

A DINNER to celebrate the quatercentenary of the granting of its charter to the Royal College of Physicians of London by King Henry VIII was held in France on September 23rd, and was attended by almost all of the Fellows of the College now serving in that country, to the number of something less than a score. The toast to the College was proposed by the chairman, Major-General Sir Wilmot Herringham, C.B., A.M.S., and a congratulatory address to the College was signed by those present. Unfortunately the night was clear, and the proceedings were cut short by enemy activity. There was an obvious misprint in the paragraph on the quatercentenary published last week. It was intended to state that the library at the time it was consumed in the great fire of 1666, along with all the College buildings, contained three or four thousand volumes. According to Merrett's catalogue, dated 1660, the number was 1,300 only, but in the catalogue of 1664 the number of books entered was 3,200, of which Merrett only succeeded in saving some 140 volumes.

THE Harveian ation, by Dr. Percy Kidd, before the Royal College of Physicians of London, will be delivered at the College on Friday, October 18th, at 4 p.m.

[1] *Ann. des mal. vén.*, Paris, 1917, xii, 547-554.

THE WAR.

THE WESTERN FRONT.

I.

The New Phase.

The resources of medicine are not inexhaustible. Science works by method, not by miracle. If the army has been freed from disease, the task has been accomplished not by some brazen serpent lifted up, but by an obscure investigation which led to the discovery of principles, and then by patient attention to infinitely little things. The laws governing immunity were first disclosed. The millions of men who compose the army were inoculated one by one, and typhoid was at an end. The mosquito, the flea, the louse, the bed-bug, in turn came under the penetrating eye of science—and malaria, plague, trench fever, and typhus were mastered.

The rescue and care of the wounded and the treatment of wounds is merely another department of medicine which is managed by taking infinite pains. The process by which a soldier is lifted where he falls, and is returned whole to his duty or assigned to his place in civil life, is the peculiar task of the medical services; but the task may be hard or easy, and there may be circumstances in which it is impossible of performance.

For the past four years the western line has been stationary, or only slightly wavering. In front of Ypres the fluctuation covered barely seven miles; in front of Bailleul it was little more. In front of Arras and Amiens the movement was wider and more violent; but the medical arrangements were never entirely dislocated. As the enemy advanced the bases were withdrawn. As he retreated the medical supports were moved up. For nearly two years, whilst the war was at an *impasse*, or the theory of the limited objective prevailed, casualties were cared for with as much precision as if they had occurred in the outskirts of London.

Battles opened at daybreak, and by 2 o'clock in the afternoon ambulance trains were entering Charing Cross. Men fell at their gun positions in front of Ypres, and in three hours they were on the operating table at Remi Siding. At the Somme in 1916 ample accommodation was available in Albert, where in one case twelve surgeons worked by day and twelve by night barely three miles from Pozieres and Courcelette, where the fighting was the fiercest. At Vimy the field was cleared at dusk, and all casualties had reached a main dressing station—fed, dressed, warmed, and comforted with morphine.

All this was merely the routine of a form of warfare which had become established. The conditions were known; events were foreseen; preparations were made in advance to cope with them. But with the advance from Arras a new phase opened, a phase which, let us hope—and fear—will persist until the end comes. The advance was so deep and so rapid that none but the most mobile of the medical elements could keep pace. The regimental and ambulance stretcher-bearers followed on, but very soon they had a carry by hand of three miles, and before the battle was over the troops were twenty miles in front of a wilderness which extended all the way from Lens to Albert. In this area no habitation remained overground, no shelter for a main dressing station, still less for a casualty clearing hospital. It is not for nothing the enemy has devastated the country over which he passed.

A casualty clearing station normally accommodates 200 cases, on the principle that a railhead is available for evacuation. Without that facility the number soon mounts up to 1,000, and the staff is overwhelmed. To move up a casualty clearing station is no small operation. The lightest form of hut demands forty lorries for transport, and even canvas requires twenty-four hours for striking, transport, and erection in the new area; but even then the problem of evacuation of the wounded to railhead remains unsolved, for good roads do not yet exist.

In this new phase of warfare surprise is the main element of success, and it is a fact that must be faced that any elaborate preparations in advance of the attack defeat the purpose of surprise. In the old days of siege warfare months could be spent in making medical arrangements. To-day the service must at times be prepared to content itself with meagre appliances. A casualty clearing station cannot be hid. It may be destroyed, and its erection is a sure sign to the enemy of an impending attack.

To this new phase the medical service has adapted itself. Something of its old mobility has been restored to the field ambulance. Casualty clearing stations operate in a chain, the one to the rear packed up and parked, ready to come to the front when the way is clear. The staff of nurses has been increased fourfold. Surgical teams have been organized with their own equipment and transport, ready to operate where the need is most urgent. Light railways are made to do duty where the standard gauge stops or is destroyed. And yet, with all these devices the fact must be faced that the medical services in this new phase are unable to provide for the wounded that complete and ready succour which four years of experience had taught men to consider as automatic.

The intent of this writing is to warn the public that the care of the wounded is merely a part of war, and that it can only be carried out subject to the needs and aims of other arms of the service. The public may be assured, however, that the medical services are fully alert to the restrictions imposed by this new phase, and that all will be done that can be done within the limits of a hard necessity.

Nothing so encourages the combatant troops in their severe trial as the sense of security that when their duty is done the medical service is at hand for their succour. Commanders have in the past made full use of this incentive to courage and daring; but commanders, no more than the public, should insist upon the impossible. It is our duty to warn the public that the war has entered upon a phase during which they must restrain their compassion, and be content with less perfect surgical ministrations. The Director-General of the medical services may well be trusted to explain in advance to the commanders that this war of movement imposes limitations upon him as well as upon other arms of the service.

The Medical Services.

Between military medicine and civilian medicine there is no gulf fixed. The one merges insensibly into the other, and both have a common root in the Hippocratic tradition, which is the good of the patient.

The military surgeon is merely a specialist, and is the complement of his civilian brother. In times of peace each goes on his appointed way. When the drums beat and the trumpet sounds their paths converge, and they come together as closely as the physician and the surgeon by the bedside. The battlefield is their clinical meeting place. Human needs are invariable. The methods by which they are ministered unto—these alone change.

During the long years of peace the military surgeon

disclosed himself as a soldier; the civilian surgeon as a man of science and as a practitioner of the art of medicine. The one devoted himself to men in the mass, the other to men as individuals requiring personal care. A specialist must have a profound knowledge of principles, a large acquaintance with subjects ancillary to his own; and it must be admitted that in England, at least, the survey of the military surgeon has been the more comprehensive of the two. He had the medical learning of the schools, and was a civilian until he had passed his degree or otherwise proved his qualification to practise. When he adopted military medicine as his speciality he did not forget his education or lose his training; and putting on the uniform of the soldier did not obliterate his quality of physician and surgeon.

When war came the military surgeon was quite at home in his speciality. His plans were ready and his system formed; although, relying upon the only experience available, it was quite natural that the value of the Boer war loomed too large, just as in South Africa, at the time, the importance of Indian raids, the Mutiny, and the Crimea was over-estimated. Amidst the welter and turmoil of these past four years, in operations which have extended into all known climates, from the arctic circle to the equator, and far south of that line, one solid fact emerges, namely, the efficiency of the medical services. To this wide statement there was only one possible exception, and that was due to causes lying quite outside the function and authority of the military surgeon.

It was not by accident that this efficiency arose. It was due to a recognition of the sound principle that civil and military surgery are one, that both demand the same preliminary training, that both must be merged in the hour of need, and that the specialists should keep to their respective places; because, in short, the two had not in time of peace been dissevered.

In all specialities there are certain prerogatives. On the civil side there are, for the successful, social dignities, academic and professional distinctions, and it may be succulent fees; on the military side the practitioner is content with more illusory rewards, such as ribbons of service and badges of rank. When the civil practitioners were called upon and were adopted into the number, they became partakers of these peculiar privileges. Among those holding the temporary rank of major-general and colonel are many who had already been granted the dignity of knighthood for services performed in their civil capacity; others have been similarly honoured during the war, and many other distinctions have been awarded to them. The list of the officers holding temporary commissions in the Army Medical Service includes men whose names have been made most familiar to the profession by their work in civil practice.

It would be too elaborate an undertaking to estimate the degree of responsibility for administration which has been assigned to the temporary officers in the service. One would expect to find that directors were men who had spent their lives in the army. Of the deputy directors eight out of forty belong to organizations which are more or less of civil origin; and of 163 assistant directors 55 have the same affiliations.

Upon the larger subject of professional treatment and administration in its wider sense—the working out of broad principles for the treatment of the wounded and sick—the influence of the civil profession is undoubted, and, to the honour of the military specialist, may even be said to be paramount. There are consultants in all the armies abroad drawn from the overseas as well as from the home profession; it would be unlikely that their advice should be disregarded, and in truth it has been sought. There are consultants also in all the commands at home who meet at regular intervals in London as the Consultants' Council, and there is a corresponding council chosen from among the consulting physicians and surgeons with the armies and at the bases in France. In addition there is an Army Medical Advisory Board at the War Office; it now consists of Lieut.-General Goodwin, D.G.A.M.S., Major-Generals Sir Bertrand Dawson, Sir Berkeley Moynihan, and Sir Robert Jones, Colonels Sir Harold Stiles and Sir William Horrocks, and Surgeon-General Sir Havelock Charles, I.M.S. To suppose that the counsels of these assembled bodies are merely hortatory or academic is to misunderstand the character of the men who compose them.

The quality of a service is the quality of the men which make it up. The medical service of the British armies is good because the medical profession is good, both at home and overseas, and offers of its best to military, as always it has done to civilians' needs.

The medical profession is not remarkable for its obedience to any traditions but its own, yet it has accepted military servitude with loyalty and cheerfulness for the general good. We hasten to add that the yoke has been made light because it was mutually adjusted by those who have borne it from their youth upwards, and by those who assumed it in later life. The confidence of the civilian profession was gained by the late Directors-General of Medical Services, Lieut.-Generals Sir Alfred Keogh and Sir Arthur Sloggett. It has been retained, and increased, by their successors, Lieut.-General T. H. J. C. Goodwin at home, and Lieut.-General C. H. Burtchaell in the field.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Killed.

Surgeon Probationer N. C. Ward, R.N.V.R., was reported as killed, in the casualty list published on September 23rd.

Seriously Injured.

Staff Surgeon G. R. Atkinson, D.S.O., R.N.

ARMY.

Killed in Action.

LIEUT.-COLONEL R. T. COLLINS, D.S.O., R.A.M.C.

Lieut.-Colonel Reginald Thomas Collins, D.S.O., R.A.M.C., was killed in action on September 18th, aged 3[illegible]. He was born on December 22nd, 1879, the only son of Dr. Wolfenden Collins, late of Sydenham, and was educated at Guy's Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1902. He entered the R.A.M.C. as lieutenant on August 31st, 1903, became captain on February 28th, 1907, major on February 28th, 1915, and temporary lieutenant-colonel on September 11th, 1916. He received the D.S.O. on January 1st, 1918, and also had gained the Croix de Guerre.

CAPTAIN C. R. HOWARD, R.A.M.C.

Captain Charles Reginald Howard, R.A.M.C., attached King's African Rifles, was killed in action in East Africa on September 6th. He was the youngest son of Robert Luke Howard of Tynemouth, formerly of St. Albans, and was educated at Guy's Hospital, and at Cambridge, where he graduated B.A. with honours, M.B. and B.C. in 190[illegible] and M.D. in 1907, also taking the diplomas M.R.C.S. and L.R.C.P.Lond. in 1902. After acting as assistant house-surgeon and house-surgeon at Guy's, he went to East Africa as bacteriologist to the Government of Zanzibar. On his return to England he settled in practice at Garston, Frome, Somersetshire, where he was honorary surgeon to the Victoria Hospital, Frome, medical officer of health [illegible]

the Frome Rural District Council, and assistant school medical officer to the Somersetshire Education Committee. He took a temporary commission as lieutenant in the R.A.M.C. on March 1st, 1916, and was promoted to captain on completion of a year's service.

CAPTAIN J. T. KIRKLAND, M.C., R.A.M.C.

Captain James Towers Kirkland, M.C., R.A.M.C., was killed in action on September 18th. He was the youngest son of Archibald Kirkland of Newmains, and was educated at Glasgow University, where he graduated M.B. and Ch.B. in 1909, subsequently filling the posts of house-surgeon and casualty house-surgeon at Glasgow Royal Infirmary, and of house-surgeon to the Glasgow Maternity and Women's Hospital. He took a temporary commission as lieutenant in the R.A.M.C. on December 2nd, 1914, was promoted to captain on completion of a year's service, and received the Military Cross on January 14th, 1916. He was attached to the Gloucestershire Regiment when killed.

Died of Wounds.

CAPTAIN C. H. FISCHEL, R.A.M.C.(S.R.).

Captain Claude Henry Fischel, R.A.M.C.(S.R.), attached Leicestershire Regiment, died of wounds on September 14th, aged 28. He was the only son of the late Mr. H. J. Fischel of Hampstead. He took the diploma of L.M.S.S.A. in 1914, received a commission as lieutenant in the Special Reserve of the R.A.M.C. on November 28th, 1914, and joined for duty on May 28th, 1915.

CAPTAIN J. C. FORSYTH, C.A.M.C.

Captain James Cotton Forsyth, C.A.M.C., whose death from wounds we announced last week, was born at Mount Bridges on March 3rd, 1871, and graduated in medicine at the Western University, London, Ontario, in 1894. He joined the C.A.M.C. in April, 1916, and served in England until July, 1917, when he went to France, and was attached to No. 1 Canadian General Hospital. He was invalided to England in June, 1918, and was on his way back to Canada when he died of wounds at sea on September 8th, 1918.

CAPTAIN L. E. W. ROBERTS, A.A.M.C.

Captain L. E. W. Roberts, Australian Army Medical Corps, was reported as wounded, in the casualty list published on September 26th, and as having died of wounds in that of the following day.

LIEUTENANT M. J. O'FLYNN, R.A.M.C.

Lieutenant Michael Joseph O'Flynn, R.A.M.C., died of wounds on September 24th, aged 38. He received his education at the Catholic College, Dublin, and Queen's College, Galway, and graduated M.B., B.Ch., B.A.O. R.U.I. in 1903, and M.D. four years later. He had served the offices of house-surgeon to the Wolverhampton and Midland Counties Eye Infirmary, and house-physician to the Salisbury Hospital. He was in practice at Neath, Glamorgan, and took a commission as temporary lieutenant R.A.M.C. in November, 1917, being attached to the Northamptonshire Regiment when wounded.

Died on Service.

CAPTAIN T. F. GRAHAM, C.A.M.C.

Captain Thomas Fleck Graham, C.A.M.C., who died suddenly of cardiac failure on September 20th, was born on August 20th, 1883, at Guelph, Ontario, the son of Mr. Alexander Graham of Brantford, Ontario. He graduated in medicine at the University of Toronto in 1914. He joined the C.A.M.C. in July, 1916, and served for some months in England, after which he went to France, and was attached to a stationary hospital. His special abilities led to his employment in resuscitation of patients with wounds of the chest, and the success he had with blood transfusion in these cases was a striking tribute to his skill.

LIEUTENANT L. S. RAMIER, I.M.S.

Lieutenant L. S. Ramier, I.M.S., was reported as having died on service, in the casualty list published on September 27th. He was educated at Madras University, where he graduated M.B. and B.S., and also took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1916. He received his commission on January 23rd, 1917.

LIEUTENANT D. TAYLOR, R.A.M.C.

Lieutenant Douglas Taylor, who died on active service on July 26th, aged 23 years, was only son of the late Dr. John Taylor of Whiteinch, Glasgow. He was educated at Glasgow High School and Glasgow University, graduating M.B., Ch.B.Glasg. in 1917 after a successful academic career. During his final year of study he acted as clinical assistant at Govan District Asylum, Hawkhead. On graduating the state of his health at first prevented him from joining the R.A.M.C., and he held an appointment for several months as district medical officer. On receiving his commission later he was sent to the Near East, and while engaged in work at a base hospital he contracted dysentery and malaria, from which he died in hospital at Salonica.

Wounded.

Lieut.-Colonel K. W. Mackenzie, D.S.O., M.C., R.A.M.C. (temporary).
Captain J. H. Campain, R.A.M.C. (temporary).
Captain J. Carrick, R.A.M.C. (temporary).
Captain J. McCusker, Australian A.M.C.
Captain K. McLean, Australian A.M.C.
Captain G. R. Phillips, R.A.M.C. (temporary).

Missing.

Captain J. Buchanan, R.A.M.C. (temporary).

DEATHS OF SONS OF MEDICAL MEN.

Bond, Leslie, Private, Hertfordshire Regiment, younger son of Dr. Bond of Treeton, died of wounds in France on September 4th, aged 20. He joined the army as a motor driver two years ago, but subsequently transferred to infantry, and had served in four different battalions.

Clapperton, Henry Bertram, Queen's Royal West Surrey Regiment, son of the late James Clapperton, M.D., of Broughton, Hampshire, killed September 14th.

Drew, Reginald James Blakeney, Lieutenant Commander R.N., only son of the late Inspector-General W. B. Drew, R.N., killed September 16th. He had seniority from January 30th, 1917. He served in H.M.S. *General Craufurd* in the attacks on the Belgian coast, August to November, 1915, and was mentioned in despatches in the *London Gazette* of January 12th, 1916.

Hadwen, Charles Eugene, Second Lieutenant Rifle Brigade, only son of Dr. A. St.John Hadwen of Ilford, killed September 12th.

Mason, George Norman Minto, Captain and Adjutant, Royal Naval Division, youngest son of Dr. Wright Mason of Hull, killed by a shell while asleep on September 13th, aged 26. At the beginning of the war he enlisted in the East Riding Yeomanry, subsequently obtaining a commission in the Northumbrian Royal Field Artillery. He went to France on July 1st, 1916, and had been on service ever since. His four brothers have all served in the war; the eldest has been invalided, the second is in hospital after amputation of leg, and a third has been wounded.

Norton, Richard Legge, Second Lieutenant Norfolk Regiment, only child of Dr. John Norton, Queen Anne's Gate, S.W., killed September 18th, aged 19.

Powers, Herbert Grendon, M.C., Captain and acting Adjutant 1/1st Ghurkas, only son of Dr. C. H. Powers of Kensington, and formerly of Westend, Hants, was killed in action in Palestine on September 19th.

Randall, Guy Philip, M.C., Captain King's Own Scottish Borderers, eldest son of Dr. Philip Randall of Bromley, Kent, killed September 18th, aged 21.

Sanders, Arthur Richard Carless, C.M.G., D.S.O., Brigadier-General, only surviving son of the late Lieut.-Colonel R. C. Sanders, I.M.S., killed September 20th, aged 41. He was educated at Haileybury, got his commission in the Royal Engineers from Woolwich on January 18th, 1897, and became captain nine years later. He went to India in 1899, and had served ever since with the 1st King George's Own (Bengal) Sappers and Miners. He went through the Indian Staff College at Quetta in 1911-12, and in September, 1914, went to France with the Indian Cavalry. He was wounded in December, 1914, got a brevet lieut.-colonelcy in January, 1916, was recently in command of a battalion of the Essex Regiment, and got his brigade command so recently as September 8th. He received the D.S.O. in June, 1915, the C.M.G. in February, 1918, and also had been decorated with the Legion of Honour.

Ward, Walter Granby, Lieutenant Royal Garrison Artillery, younger son of Dr. Ward of Peckham, killed September 3rd, aged 20.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

NOTES.

THE GRANDE CHARTREUSE AS A BASE HOSPITAL.

THE buildings of the Grande Chartreuse, which have been empty since the sequestration of the monastery in 1903, were handed over at the beginning of the present year to the United States army for use as a base hospital. The monastery was originally founded by St. Bruno in 1085, and in the succeeding six centuries was eight times destroyed by fire. The present buildings have no architectural pretensions, and date from 1676; they stand in a picturesque situation at an elevation of over 3,000 feet, on the northern slopes of the Dauphiné Alps, about twenty miles from Grenoble. Since the buildings were taken over by No. 3 Mount Sinai Unit, which left America in February, they have undergone various transformations and a number of new structures have been erected. A dispensary has been established in the pharmacy of the monks, and laboratory and *x*-ray outfits have been provided. There are two operating theatres, and separate rooms for eye, nose, and throat work, jaw surgery, and dentistry. The ward buildings, which vary in size, the largest providing 115 beds, are lighted by electricity and warmed with steam heating. Covered walks for convalescents have been provided, and will no doubt be needed, as the winter climate is rigorous. The Mount Sinai unit consists of twenty-six officers, among them being some of the leading physicians and surgeons of New York, sixty-five nurses, five female civilians, and 153 enlisted men. The first patients were admitted in May.

HOSPITAL FOR NEURASTHENIC MEN.

A new hospital for discharged neurasthenic sailors and soldiers at Bray Court, Maidenhead, has been placed by the Ministry of Pensions under the management of the National Hospital for the Paralysed and Epileptic, Queen Square, London, W.C. Accommodation for the treatment of fifty patients has been provided. Within the large building, outbuildings, and extensive grounds there is ample room for arrangements for re-education and the teaching of suitable trades.

Correspondence.

REMUNERATION OF RURAL PRACTICE.

SIR,—The following is an attempt to express in terms of money the difference in the amount of work under the National Insurance Acts that is done by the country and the town practitioner.

At the time of the passing of the Act it was said that the extra time and money spent in travelling in a country practice would be neutralized by the smaller demand made for attendance by the dwellers in rural districts. Many of us doubted if this would prove to be the case, arguing that the inaccessibility of hospitals, the distance of patients from the surgery, the exacting demands of employers to visit their servants, and other causes of extra visits, would more than cancel the advantages due to the better health of the insured person in the country.

The report of the Scottish Commissioners has now definitely settled this question for Scotland—and presumably for England and Wales—by giving actual figures. They find that the average of the three years 1913, 1914, and 1915 shows that for every 100 insured persons the actual number of attendances—that is, visits and consultations at the surgery—is in reality higher in the counties than in the burghs—namely, 324 per annum as against 310. Further, they find that, comparing visits and consultations, in the counties, "the visits preponderate," whereas in the burghs they are roughly only as two is to five. Combining these statements into actual concrete figures, we find that for every 100 insured persons on his panel list the country practitioner pays $>3\frac{1}{2}$—that is, at least 163 visits, and gives 161 consultations at the surgery; while the town practitioner pays two-sevenths of 310—that is, 89 visits, and gives 221 consultations.

Here, then, are indisputable data. Can we translate them into terms of money?

Take first the visits. Every visit made involves two expenditures which should be paid for: (*a*) The actual money spent in travelling; and (*b*) the time occupied by the journey. These can both be estimated at so much a mile, and the first thing, therefore, is to find the extra miles travelled by the country practitioner.

To do this we must know the average number of miles travelled for every visit paid. This is a most important figure—indeed, it is an essential datum to have before we can deal with any aspect of the mileage question on a scientific basis. It is easily ascertainable if a practitioner will take the trouble to keep a record of his total mileage for the year, tot up the number of visits paid to all sorts of patients, and divide the one by the other. This figure—"miles per visit"—will be found, roughly speaking, to vary inversely with the density of the population. In practices in crowded towns it is only a small fraction; in wide country practices, such as are found in the North Riding of Yorkshire, it is said to be as high as five or more. The number of visits paid for every hundred insured persons in a year multiplied by the "miles per visit" figure will give us an exact measure for comparison between one class of practice and another.

What ought to be taken as an average town practice with which to compare that of the country doctor? It is said that when the capitation fee of 7s. was accepted by the profession this sum was understood to cover a reasonable amount of travelling. Seeing that all town practitioners, however dense their population and limited their radius, receive this sum, that an insured person in a town seldom resides more than a mile from a doctor, and that many visits can be made in one short round, it will be fair, I think, to take the miles per visit figure of *one* as marking the outside limit of a "town" practice. It must be a very scattered sort of town practice where a man bicycles more than ten miles to see ten patients in a morning. This figure, then, will give us 89 miles of travelling per 100 insured persons as the base line beyond which a practitioner can fairly claim that his extra travelling should not be covered by his ordinary capitation fee, and entitles him to such privileges as may attach to the position of a country doctor.

But a country practitioner whose miles per visit figure is *one* travels 163 miles per 100 insured persons by reason of the extra visits he has to pay, giving him 74 miles in excess of the standard; if his miles per visit figure is *two* his excess is 237, if *three* it is 400, if *four* 563, and if *five* it is 726.

The next step is to translate these extra miles travelled into a money equivalent. The factors are, as we have seen, the money spent, and the value of the time occupied in travelling.

As regards the out-of-pocket expenses of travelling there is not much difficulty. We may assume that the country practitioner travels by the quickest method open to him, namely, by motor—if he rides or bicycles he will reduce his out-of-pocket expenses, but he will lose in time. It will be generally agreed that 6d. a mile is the minimum cost of motoring. At the present cost of petrol, repairs, and renewals, it is certainly higher—probably 7d. or 8d. The present army allowance is from 5d. to $7\frac{1}{2}$d., the cost of hire is 1s. But for the sake of simplicity let us take it at 6d. a mile.

When we come to the value of the time occupied the problem is not quite so simple. The amount of time depends upon the speed of the motor; with ordinary country roads and allowing for stopping and starting probably fifteen miles an hour is the most one can do, but for the sake of simplicity let us take it at sixteen. As to the value of time—obviously this is a matter of assumption; everybody is free to value his own (and his neighbour's) time as he pleases. I shall take that of the country practitioner at 8s. an hour, which, working eight hours a day for six days a week, will give an income of just about £1,000 a year. This is not, I submit, too high a figure for a man who has shown by his admission to a learned profession that he possesses somewhat more than the average amount of brains, and has spent a considerable amount of time and money in training them, who must possess more than the average physical health and strength in order to be fit for a hard life, and even so cannot expect to last out a very long professional career, who owing to the want of local facilities has to spend more than the average amount on the education of his children, and at the same time has to save up for his own old age to provide for his dependants. Eight shillings an hour, at a speed of sixteen miles an hour gives a time

value of 6d. a mile, which, added to the 6d. a mile for out-of-pockets, gives 1s. a mile as the payment due to a country doctor for the excess of distance travelled.

For his *visits*, therefore, a country practitioner whose miles per visit figure is *one* should receive an extra 74s. (£3 14s.) for every 100 persons on his panel; if his miles per visit figure is *two* he should receive £11 17s., if *three* £20, if *four* £28 3s., and if *five* £36 6s.

Now as to the *consultations at the surgery*, a deduction must be made for the smaller number given by the practitioner in the counties as compared to his brother in the burghs—161 as against 221. What is the value of the time thus saved? The fee allowed for an "attendance" by the Commissioners' scale for temporary residents and others is 2s., and this accords fairly well with the value of time as assumed above. It can hardly be argued that more than a quarter of an hour is required for an average professional interview, while if it could be suggested that less than that time were ever given, the value of time would have to be taken at a higher figure. Taking the value of an attendance at 2s., then the sixty consultations at the surgery saved to the country practitioner will be worth £6 for every 100 persons on his list, and on balance the final result works out as follows:

In order to give an equivalent remuneration to the town and country practitioner, the latter, if his average miles per visit are *one*, should receive per annum for every hundred persons on his list £2 6s. *less* than he does at present. If his miles per visit are *two*, he should receive £5 17s. *more*; if *three*, £14 more; if *four*, £22 3s. more; and if *five*, £30 6s. more.—I am, etc.,

Weyhill, Hants, Sept. 29th. J. P. Williams-Freeman.

EARLY TREATMENT OF MENTAL DISORDER.

Sir,—Dr. Flemming's letter (September 28th, p. 357) emphasizes a difficulty which is constant with general practitioners in dealing with mild mental cases. Every medical man realizes that the treatment of such cases should be conducted away from the patient's home and under special care; and, indeed, general practitioners do not desire the responsibility of treating such cases. But, in the absence of suitable hospitals, what else can be done?

Now, efficient treatment requires efficient diagnosis, efficient accommodation, and efficient personnel. The recognition of mild mental trouble ought not to be difficult from a general practitioner's point of view, but diagnosis as to the cause and consequent treatment is a very different matter, and the investigation necessary can only be properly accomplished by up-to-date laboratory methods. For example, with regard to the cerebro-spinal fluid, we have to ascertain whether it is under pressure or otherwise, the presence of pleocytosis, globulin and glucose content, colloidal precipitants, complement-deviation substances, etc.; similarly, a detailed examination of the blood has to be undertaken, and toxic conditions due to bacteria, such as pyorrhoea and coliform infections, etc., must be investigated and vaccines prepared. For such examination it will not do to send material by post; it must be freshly obtained; it is therefore obvious that an up-to-date laboratory must be at hand.

As regards treatment, Dr. Flemming says "the asylum is worse than useless." Why? Is an asylum, or, as it is now termed, a mental hospital, merely to be regarded as a dumping ground for lunatics, or is it an institution for the treatment of mental disorder?

When it is recollected that a very considerable proportion of these certified patients is returned to civil life, recovered, it is apparent that the present large mental hospitals are not merely dumping grounds for lunatics, and given reorganization they should provide efficient treatment for all cases.

I would suggest that the matter could be adequately dealt with by complete reorganization on the following lines:

1. Centralization of management under a Ministry of Health.
2. Sexes to be housed in different hospitals and the women's hospital staffed by women medical officers.
3. Larger and more up-to-date medical staffs to embrace electrical specialists, dentists, and bacteriologists, for example, with good laboratory accommodation, which laboratory should also be of use locally for other work.
4. Every opportunity and encouragement given for research—for example, study leave, etc.
5. More personnel.
6. Additional buildings away from the present main building to deal with mild and recoverable forms of certifiable mental disorder and also with voluntary patients.

Speaking as a medical officer of many years' experience, I may say that the greatest difficulty which one has to deal with in treating mild mental disorder in a large mental hospital is the deficiency of staff and suitable accommodation, so that proper classification and more individualistic treatment can be adopted.

7. Consultant work to be undertaken by the staff in respect of action regarding patients not considered certifiable, and necessary legal powers given.
8. I would also suggest that there should be no need for an expensive resident medical staff attached to the building for definitely irrecoverable patients; one of the junior staff taking his turn as orderly medical officer should suffice.

There are many other points of importance which can be dealt with more efficiently through central organization than by local bodies.—I am, etc.,

Stafford, Sept. 30th. B. Henry Shaw.

SURGICAL PHYSIOLOGY OF THE FOOT.

Sir,—The paper by Captain Fairweather on boot heels as a cause of flat-foot, etc., in the Journal of September 21st, contains statements which to me are startling: that "cycling and tiptoe exercises tend to produce flat-foot"; that "in a normal barefooted man the weight rests on the heels and outer sides of the feet, not on the arch"; but, if the heels be raised from the ground "by boot heels even a quarter of an inch thicker than the soles," the weight falls on the arch. Still, in the case of the American Indian, "his flat feet (caused by his method of carrying weights) do not handicap him, as his moccasins are heelless."

There is a very curious difference between the author of the paper and Duchenne of Boulogne, who wrote with authority fifty years ago. The former regards the peroneus longus as "pulling the arch down"; the latter regards it as forming the arch. The former regards the tibialis anticus as "the most important muscle concerned in preserving the arch," the latter as the destroyer of it. His words are "le long péronier est le formateur et, pour ainsi dire, la clef de la voûte plantaire; eh bien! le jambier antérieur en est le destructeur."

Both views illustrate the importance of bearing in mind the general principle that muscles seldom, if ever, act singly. We see the net resultant of combined action. When the arch is fully formed, mainly by the bowstring or tie-rod action of the flexor longus pollicis, the long peroneus braces up that portion of the arch which its tendon subtends, and, so far, helps to form the arch, but the chief effect is to draw the crown of the arch downwards, and so prevent over-formation. As to the tibialis anticus, it is enough to point out that when, as seen in cases of infantile paralysis, this ceases to act, the arch certainly does not lessen.

Sir Thomas Watson, in his classic lectures on the principles and practice of physic, makes an eloquent reference to the wonders of the human body, including "its compensations for inevitable disadvantages." This is well illustrated in the human foot, which, in supporting the heavy weight it has to bear, must be elastic; rigidity is inconceivable. But elasticity involves yielding, and yielding involves a disposition to deformity. Here is a disadvantage; it is, however, inevitable. What, then, is the compensation? It is found in the exercise of that which is the principal function of the body, taken as a whole, in motion. The muscles which by their action move, in their action support the structure and maintain the form which in early life they have developed, and which, when deformed, they can, by specially active use, restore. This is the leading motive throughout my book on the human foot. Here I may be permitted to add that Sir William Turner, in kindly telling me that he had written a review of it, supplied me with an excellent expression which, I think, ought to be borne in mind by all who study the prevention and cure of deformities—"the ligamentous action of muscles."

This view of muscular action in preventing flat-foot is forcibly expressed by Professor Arthur Keith in his interesting little book on the human body, but, despite his high authority, I cannot concur in an exception which he makes to the general principle involved. I cannot believe that any arrangement of ligaments or locking the bones of

a joint could resist the backward thrust against the knee-joint in the act of carrying a heavy weight up a steep incline. Support must depend on action of the thigh muscles which, coming from above, pass over the knee-joint to be attached to the leg bones, at two points; and of the leg muscles which, coming from below, also pass over the knee-joint to be attached to the femur, at two points, the divided muscles intersecting with and overlapping each other.

Here the bad influence of high boot heels must be mentioned. Clearly, in proportion as they do not allow the heels to go down, they diminish the range of movement in springing to the tip-toe position. Nearly forty-four years have gone by since I read, before our local Branch, a paper on the influence of muscular action in the prevention and cure of flat-foot. Then and ever since I have advised tip-toe exercises as a remedy. Now I am told that they "tend to produce flat-foot." I heartily wish that some one who can speak with authority greater than mine would supply an answer to the question, What is the teaching of surgical science on the surgical physiology of the foot?—I am, etc.,

Gloucester, Sept. 25th. T. S. ELLIS.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—In the JOURNAL of September 21st there is a characteristic article on the future of the medical profession by Sir James Barr. Its real meaning is not apparent, and its influence on the general practitioner is difficult to gauge.

Surely the writer had other aims than merely those of having a fling at the National Insurance Act, and telling us that he believes in evolution and not revolution, or throwing cheap sneers at the mediocre intellect of his fifth and sixth rate politicians. That blood will tell is a truism which does not demand columns of the JOURNAL to carry conviction to the minds of the profession. At the same time activities are paralysed and confusion created when, in one sentence, Sir James tells us that our child welfare schemes preserve too many bad and indifferent babes, and in the other he pictures the dreadful evils, the "irreparable mischief," that follow the lack of a proper appreciation of post-nasal adenoids. These dreadful evils could evidently have been nipped in the bud. By what agency? Is it by means of the hard-worked general practitioner, whose time is fully occupied in attending to and doing his utmost to remedy the results of neglected conditions, and whose livelihood depends on his activities in that direction, or by the evolved health specialist unembarrassed by financial considerations and always available to point out the paths of physiological righteousness?

There are evidently laws of health as well as inherited vitality, and who shall separate them? The welfare of the nation as well as the future of the medical profession are calling for an enlightened and comprehensive plan in which all medical men will have work to do, the general practitioner especially. Let Sir James Barr do something practical and constructive in the shaping of a national medical service, and then he will be able to recommend intellectual young men to enter the profession.—I am, etc.,

September 30th. SANITAS.

SIR,—Sir James Barr borrows this title for his paper in the JOURNAL of September 21st from Sir Bertrand Dawson in order that he may be able to pass a sneer at the latter's suggestion of team work; that is practically all the heading has to do with the substance of the paper, which is a lecture on the shortcomings of the practice of medicine to-day. Had the writer taken one of the subjects he touches upon and written at greater length thereon he might have given us something worth reading—something useful to us in our daily work.

There are some of us who know the treatment obtainable by the mass of the working class and realize that it should, and could, be improved; we are honestly trying to find the best way. Is it fair for men who hold high positions in the profession only to enter the discussions to jeer at those who are doing their best? Probably Sir James Barr has no first-hand knowledge of industrial practice; then how can he form a sound opinion thereon? Would he trust to hearsay knowledge in forming a diagnosis? Does he still hold that "hospital treatment is absolutely essential for the working classes"? Does he draw a line at any clinical or social point at which they cease to be essential? Does he consider that ill equipped hospitals are good enough?

Surely we all agree that every means of prevention and cure of disease should be obtainable by all. If so, why not all unite in trying to find a means of bringing it about? We must be constructive if we want any voice in our own future; it is no good to try to sit in the last ditch. We must realize that socialism has made an advance and will not be turned back.—I am, etc.,

Mumbles, Sept. 27th. F. DE COVERLY VEALE.

THE CENTRAL POOL.

SIR,—It is important that the two misconceptions evidenced by the letter of Dr. Mears should be removed. Otherwise members of the profession may improperly decide on the questions now submitted to them.

The idea that "areas whose index register is kept as accurately as possible are penalized in favour of areas where the register is kept carelessly" is quite erroneous. The opposite of this statement is true. Persons whose title to medical benefit in an area has for some reason not been definitely established are placed on a suspense register in that area. Names on the suspense register are not counted in distributing the Central Pool to areas. It follows, therefore, that where a committee takes trouble to clear its suspense register by discovering title and properly transferring names to the ordinary register the proportion of the pool going to such a committee's area is increased, whereas in areas where nothing is done the proportion remains somewhat smaller than it should be.

It is not suggested that "our basis of payment should be the number of insurance stamps sold in a year." If the new suggestions are accepted, the Central Pool will, as now, contain a sum calculated at the rate of 9s. a year for every insured person in medical benefit. With a large migratory population it is impossible to arrive at this sum by a direct addition of the amount due in respect of each individual. The calculation has to be made by actuarial methods. At present the main item in this actuarial calculation is the number of insurance cards surrendered in respect of the first half of each year, but a considerable number of other data are used in arriving at the result.

The new suggestion is that the main item in the actuarial calculation shall be the number of insurance stamps sold during the preceding year, but all other relevant data will be taken into consideration. By this means the actuaries believe that the amount of the Central Pool can be arrived at some eighteen months earlier than is at present the case; and in future, as now, we should have their professional assurance that the amount in the pool for any year will be equivalent to that which would have been produced by a direct calculation of the capitation fees, within a very small margin of error which may be in either direction.—I am, etc.,

Stroud Green, N., Sept. 28th. H. B. BRACKENBURY.

SIR,—The memorandum of the Insurance Acts Committee (M.3) puts forward practical proposals concerning the composition of this fund which compels the attention of all panel practitioners.

That the Insurance Commissioners should propose to constitute the fund on the basis of the sale of insurance stamps seems to me to indicate a desire to do justice to the insurance practitioners as well as effecting a general simplification of the complicated method at present in use. According to a paragraph in the *National Insurance Gazette* of April 7th, 1917, in reply to a question in the House of Commons, Sir E. Cornwall told Mr. T. Wilson that for the period ending December 31st, 1914, the difference between the value of the stamps sold and those accounted for in the National Health Insurance Fund amounted to £550,000.

By this time the figures would be presumably well over £1,000,000, for since the beginning of the war large numbers of people have become insured who care nothing for national insurance, and do not desire to be identified with it. Thousands of cards belonging to these and other persons are never surrendered, the Government being the gainer and the panel doctor the loser by this default.

I am glad, therefore, to see that the Insurance Acts

Committee sees no substantial disadvantages in the proposed departure which I believe would result in our being paid in full and with a promptitude to which we are at present unaccustomed.—I am, etc.,

September 29th. W. G.

THE ABUSE OF DRAINAGE TUBES.

SIR,—In a letter published in the BRITISH MEDICAL JOURNAL of September 21st Dr. Frank Hathaway claims that King Edward VII Hospital, Windsor, was the first hospital to give up the use of drainage tubes. I cannot admit the justice of this claim, as drainage tubes have not been used in the Military Hospital, Lincoln, since 1915.

On June 17th, 1915, I wrote to the D.D.M.S. Northern Command stating that I had almost discarded that barbarity—the drainage tube. In the *R.A.M.C. Journal* of October, 1915, I repeated this statement, and in my article, the "Treatment of septic wounds with equal parts of ichthyol and glycerin," published in *The Practitioner* of January, 1916, I stated: "Many of the wounded come to my hospital with drainage tubes; these I remove at the first dressing and never replace them; they are unnecessary and cause much suffering."—I am, etc.,

C. W. DUGGAN,
Major R.A.M.C.

Military Hospital, Lincoln, Sept. 28th.

Obituary.

JOHN WATSON MULLIGAN, M.D.,

Formerly President of the South Wales and Monmouthshire Branch.

We regret to announce the death at Corbet, near Banbridge, co. Down, Ireland, of Dr. Mulligan, formerly of Abersychan, South Wales. He was the son of the late Dr. Thomas Mulligan, M.D., of Meigh, co. Armagh, and was born at Tallyconnaught in 1844. He was educated at Queen's College, Belfast, and graduated M.D. Queen's University in 1864. After practising for a short time first in Auchnacloy and then at Abersychan, he went to Australia, but returned to Abersychan in 1872, and he succeeded to the practice of the late Dr. J. W. Davies of Ebbw Vale. Dr. Mulligan was M.O.H. for the area for forty-two years, senior surgeon to the Pontypool Hospital, medical officer of the Pontypool Union, certifying factory surgeon, justice of the peace for Monmouthshire, and an alderman of the first Monmouthshire County Council. He took an active interest in the Volunteer movement and became brigade surgeon and colonel of South Wales Volunteers. He was an enthusiastic Mason and was W.M. of the Kennard Lodge in 1882, Past First Principal of Kennard Chapter, and a Past Provincial Grand Warden. He had been looking forward to being present at the installation ceremony of his son in the Kennard Lodge on September 24th, but death forestalled.

Dr. Mulligan was a man of commanding presence, wide sympathy, and a very exalted standard of professional honour. He was patient and tolerant in all things, and his work in the Pontypool Hospital was marked by care and thoughtful consideration for his patients. He was an excellent operator and a most astute diagnostician. In his relations with his colleagues he exhibited the tenderest charity and fulfilled Newman's definition of a gentleman, that "he never inflicted pain." His work for the British Medical Association was a continuous joy to him. He received every honour that the Branch and Division could give him. He had been president of the South Wales and Monmouthshire Branch, was first Chairman of the Monmouthshire Division, and remained down to his retirement in 1915 a regular attendant at the various committees. His sound judgement and restrained expression were valuable assets; no matter how difficult the situation might seem he provided an acceptable solution. It can be well imagined that such a man would be a valued friend and adviser to a large circle of patients and colleagues, as was indeed the case.

At the time of his retirement in 1915 he received innumerable expressions of regret and good wishes, but none gave him greater pleasure than a small gift of plate to himself and his wife from the Monmouthshire Division as a recognition of his inestimable services and unbounded hospitality. He lived a useful, busy, and well-ordered life. He leaves a widow, a daughter, and three sons, two of whom succeed him in practice.

DR. GEORGE RICHARD CHADWICK died at his residence at King's Lynn on September 20th, aged 66. He received his education at Guy's Hospital and took the diploma of L.S.A. in 1875, that of M.R.C.S.Eng. in 1876, and graduated M.D.Durh. in 1894. He succeeded the late Dr. Woodward in practice and had held the appointments of honorary consulting surgeon to the West Norfolk and Lynn Hospital, medical officer to the post office, surgeon to the borough police, as well as that of Admiralty surgeon and agent. After the departure of some of the younger members of the profession on military service Dr. Chadwick patriotically resumed active hospital work which he had resigned, and also undertook the duties of medical officer to the King's Lynn Union. He was a member of the West Norfolk Division of the British Medical Association.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following scholarships have been awarded:

St. Bartholomew's Hospital and College.—Senior Entrance Scholarship in Science: C. L. Pasricha (£75). Junior Entrance Scholarship in Science: B. M. Tracey (£100). Entrance Scholarship in Arts: J. Maxwell (£100). Jeaffreson Exhibition: N. E. Laurence (£50).

Guy's Hospital Medical School.—Senior Science Scholarship for University students: J. H. Burn (£75), M. H. MacKeith (£35). Junior Science Scholarships: E. C. Warner (£120), M. B. Goolding (£50). Scholarship in Arts: C. S. Hallpike (£100).

Medical News.

A LECTURE will be delivered on Thursday, November 28th, at 6 p.m., before the Child Study Society, London, by Mr. N. Bishop Harman, F.R.C.S., on the subject of sight-saving schools. Dr. James Kerr will take the chair.

THE Elsie Inglis Unit of the Scottish Women's Hospital is, we are informed, the only field hospital attached to the Jugo-Slav Division in Macedonia. When the latest information was received it was at Dragomantsi, north of Vodena, and a new station, served by motor ambulances, had been established nearer the front. The unit has recently been joined by Miss Elinor Rendel, M.B., as junior surgeon.

LIEUT.-COLONEL SIR DAVID SEMPLE, who has held the appointment since 1913, has resigned the post of Director-General of Public Health, Egypt. His second in command, Dr. Cyril Goodman, has likewise retired owing to ill health, and the Government is finding difficulty in selecting successors. Meanwhile a special commission has been appointed under Dr. Andrew Balfour to examine the public health administration in the country, and it is believed that advantage will be taken of this opportunity for amalgamating the International Quarantine Board with the civil public health administration.

A FUND is being raised to do honour to Senator Camillo Golgi, Professor of General Pathology in the University of Pavia, on the occasion of his retirement this year, when he reaches the limit of age. The money is to be used in the foundation of a bursary to be given annually to an orphan of an Italian practitioner who wishes to enter the medical profession, preference being given to one who has lost his father in the present war.

THE annual meeting of the American College of Surgeons will take place in New York under the presidency of Dr. William J. Mayo, on October 21st to 26th, and will be attended by some representatives of British surgery. During the congress visits will be arranged to the hospitals and laboratories of the city and to the clinic for the functional re-education of disabled soldiers and sailors.

V. C. PIAZZA states (*Rif. Med.*, June 15th) that malingerers who desire to produce the appearance of albuminuria either add liquid or dry albumin to the urine or inject it into the bladder. Generally hen's egg albumin is used, but human or horse serum is occasionally employed. The repeated injection of albumin into the bladder sets up an inflammatory condition which manifests itself by the presence of a minimal quantity of pathological albumin and an abundant deposit consisting wholly of well-preserved leucocytes. Sometimes methods tending to set up an albuminuria of renal origin are used, as by the intravesicular injection of big doses of quinine, salted meats or fish, large quantities of sodium chloride or pepper, but more commonly by the ingestion of enormous quantities of egg albumin, liquid or desiccated.

THE British Fire Prevention Committee has prepared a small poster (No. 32) entitled "Fire precautions for householders." It is simply worded and highly practical; copies will be supplied free to any applicant who sends an addressed and stamped envelope to the offices of the committee (3, Waterloo Place, London, S.W.1).

THE American Medical Department has established a central laboratory in France under the direction of Lieut.-Colonel George B. Foster, jun. Among the workers are Major Richard P. Strong, professor of tropical diseases at Harvard, Major William J. Esler, professor of bacteriology at Cornell, and Major W. B. Cameron, professor of physiology at Harvard.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

QUERIES AND ANSWERS.

CUSTOS inquires for a simple formula for making a 5 per cent. solution of aluminium subacetate which is recommended for use in burns.

G.P. wishes to learn if cuprase or collosol cuprum has been tried in cases of mediastinal growths (not secondary) and with what results.

HEXAMINA inquires whether the continued use of urotropin in 10 grain doses thrice daily can harm the kidneys.

LETTERS, NOTES, ETC.

A PHYSICAL CENSUS AND ITS LESSON.

Erratum.

IN the article which appeared last week with this title there was an obvious misprint in the eighteenth line on p. 349, due to the omission of a decimal point. The sentence should have run: "In other words, in less than 0.4 per cent. of this enormous number of medical examinations there was reason to believe . . . that the grading by the National Service Medical Board did not correctly represent the degree of physical fitness of the individual."

WOUND TREATMENT.

DR. J. J. BOERMA (Arnhem, Holland) writes to say that he has read with much pleasure the publication issued by the British Medical Association, entitled *British Medicine in War*, and adds: In the chapter on wound treatment I did not see the method of deep disinfection anaesthetization, by injection with novocain and some disinfecting agent around the wound as described in the *Nederlandsch Tydschrift von Geneeskunst* of August 17th, 1918. In infected suppurating wounds you have attained great success with the Carrel-Dakin method, but would it not be logical to try to attain a deeper disinfection by injections in some suitable cases? May be you are employing already some kind of such method and hope you will consider my remark upon your excellent work as a feeble trial to do a little bit for the benefit of the gallant British soldiers.

MANGANESE A POISON.

MR. J. F. WARD (Manager, The Crookes Laboratories, 50, Elgin Crescent, W.11) writes, with reference to the letter of Dr. James Gairdner (September 28th), to point out, in view of the extensive use of colloidal manganese at the present time by intramuscular injection in furunculosis, acne, eczema, gonorrhoea, and generalized systemic infections, that in the colloid state manganese is for all practical purposes non-toxic. Physiological experiments undertaken by Professor R. Tanner Hewlett of King's College in July, 1918, showed that 11 c.cm. of collosol manganese injected intravenously into a rabbit weighing two kilograms produced no ill effect. The dose found by clinical experience to produce the best results is 0.5 c.cm. to 1.5 c.cm., and reports (as already mentioned by Sir Malcolm Morris and other writers in the medical journals) almost invariably show marked constitutional improvement after the injections.

LIQUID FIRE IN WARFARE.

THE prototype of the liquid fire now used by the Germans was the "Greek fire" which kept sea power in the hands of the Byzantines in their long struggle with the Moslems. This "Palladium of the State," as it is pompously styled by Gibbon, was an incendiary compound the secret of which was imparted to the Constantinopolitans by Callinicus, a native of Heliopolis in Syria or in Egypt. It would seem from the vague and possibly misleading hints of Anna Comnena, daughter of the Emperor Alexius Comnenus I, in her *Alexiad*, and other Byzantine writers, that the principal ingredient was naphtha or liquid bitumen, which is found in abundance in certain areas between the Tigris and the Caspian. The naphtha was mixed with sulphur and turpentine. The fire was used in various ways. The simplest weapon was probably a tube filled with combustible materials, which was flung by the hand like a grenade. From the ramparts of Constantinople it was poured out of large boilers, or shot in arrows and javelins round which flax or tow strongly impregnated with the inflammable oil was twisted. Sometimes it was carried in fire sloops and blown through long copper tubes "fancifully shaped into the mouths of savage monsters that seemed to vomit forth a stream of liquid and consuming fire," which were laid on the prows of galleys. It is probable that naphtha was the "oleum incendiarium" used at the siege of Jerusalem, although there is no direct evidence on the point. Joinville, in his life of St. Louis, says that the fire came flying through the air like a winged, long-tailed dragon about the thickness of a hogshead, with a noise like thunder and the velocity of lightning. There is a formula in a treatise by Marcus Graecus of the ninth century with a title of undisguised frightfulness, *Liber ignium ad comburendos hostes*, which exists only in a Latin translation, edited by F. Höfer in his *Histoire de la Chimie* (1842). The use of Greek fire was continued till the middle of the fourteenth century, when the discovery of gunpowder brought about a revolution in the art of war.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

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The following subscriptions, completing the list up to Monday, September 23rd, should have been acknowledged in our previous issue:

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Dr. W. E. Good	0	10	0	Captain H. L. P. Hulbert,			
Major E. R. Fothergill, R.A.M.C.	0	10	0	R.A.M.C.	1	0	0
Dr. J. O. Musson	0	10	0	Dr. H. Whitehouse ...	0	10	0
Dr. W. Stewart	0	10	0				

Subscriptions to the Fund should be sent to the Treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

THE BELL FUND.

DR. S. A. KINNIER WILSON asks us to acknowledge a donation to the Dr. J. H. Bell Fund of £1 1s. from Dr. S. H. Belfrage. Subscriptions should be sent to Dr. Wilson at 14, Harley Street, London, W.1.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.